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RAILWAY AGE *weekly*

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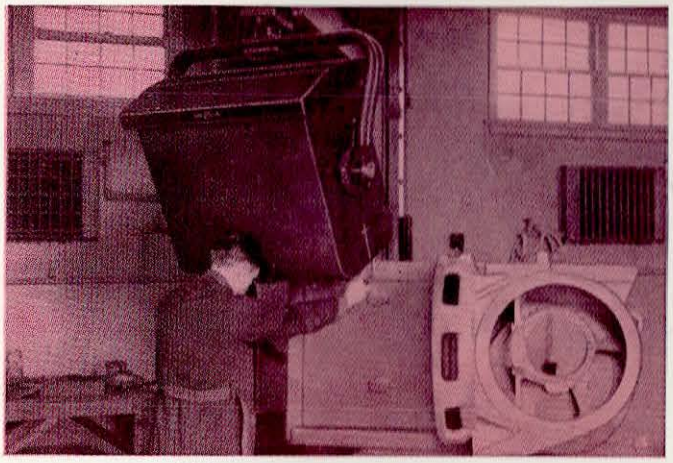

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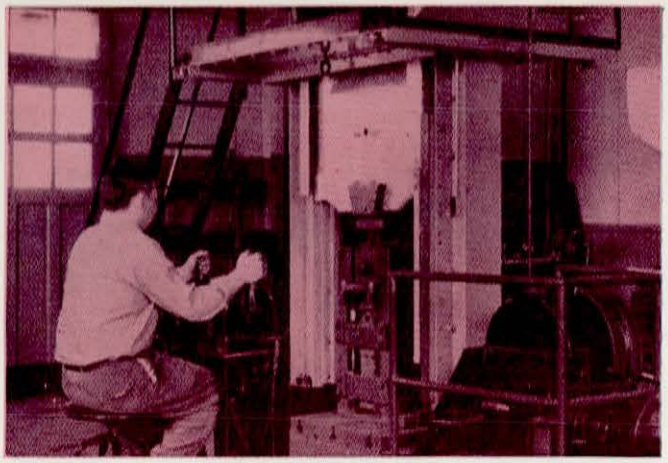
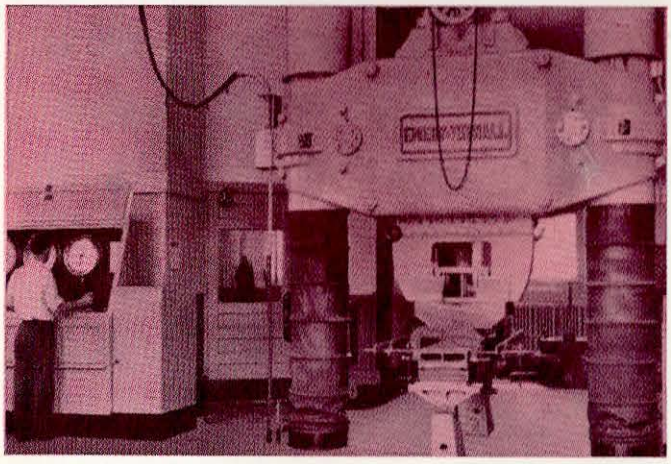


Drop hammer dynamic test



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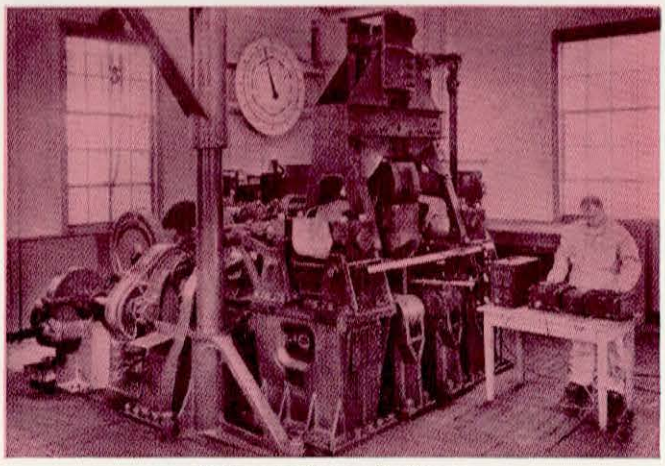

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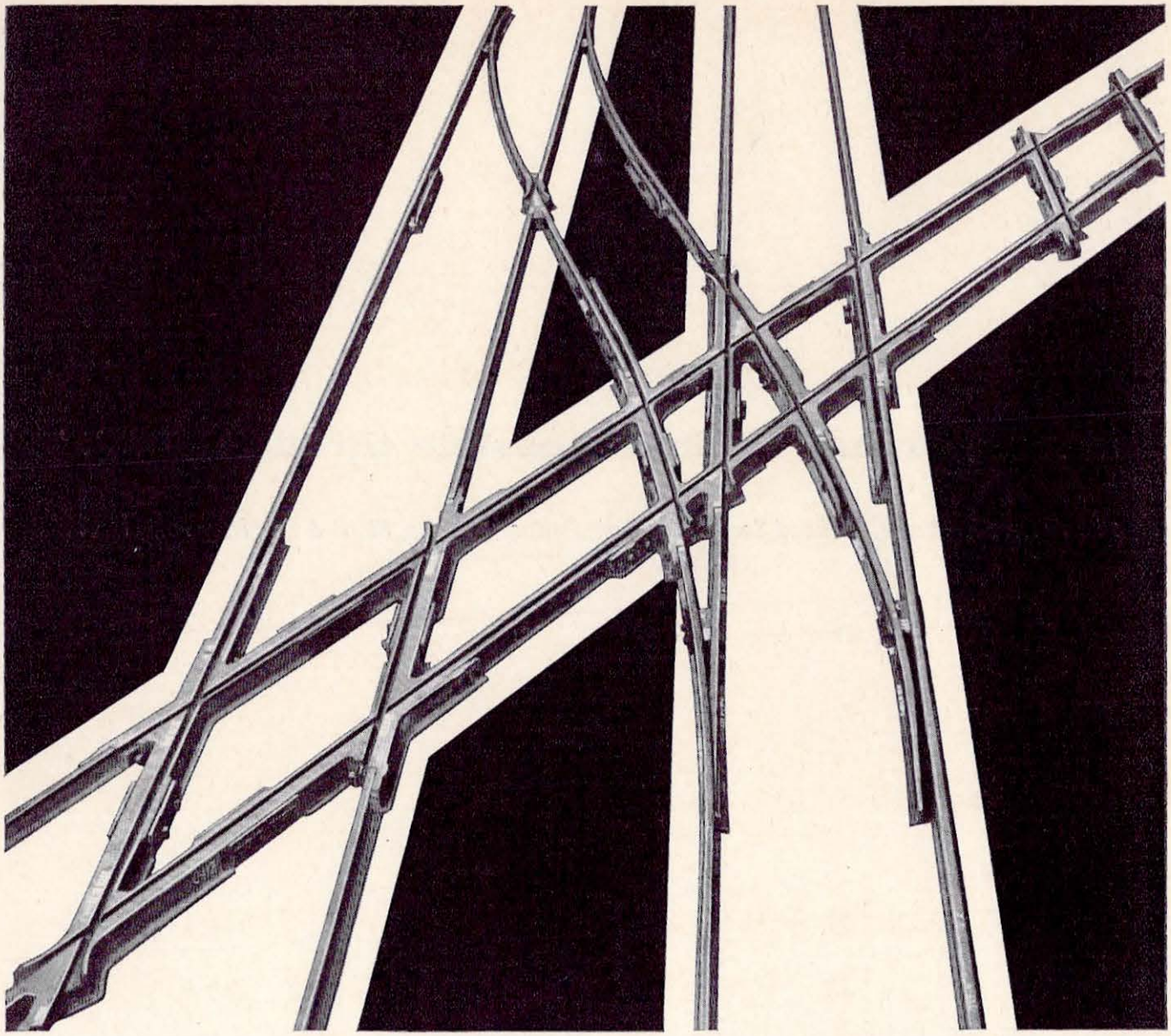

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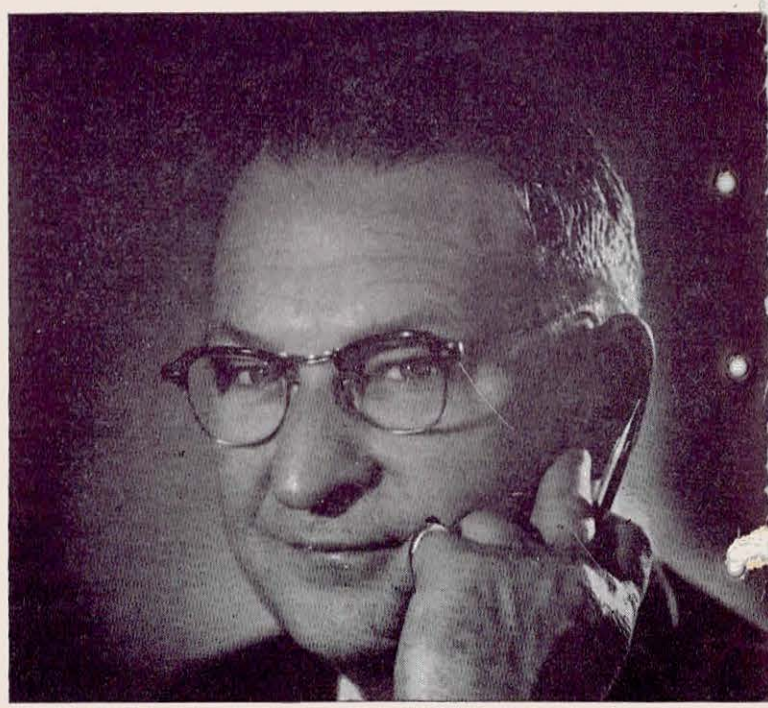

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RAILWAY AGE *weekly* August 15, 1960 • Vol. 149, No. 7

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Guaranteed rates called illegal ..... p. 9

An ICC examiner, while expressing admiration for the railroads' efforts to hold and regain traffic through rate innovations, has nevertheless advised the Commission that the guaranteed-rate principle in general—and the Soo Line rate in particular—don't "meet the tests of legality." He contends that such rates violate the Interstate Commerce, Elkins and Sherman Antitrust Acts.

Cover Story—Coming: atomic 'ash' container p.14

Increasing use of nuclear energy in utility plants and naval vessels poses a problem: how to transport radioactive spent fuel efficiently and safely? Specialized containers are one answer, and engineers at Knolls Atomic Power Laboratory have now designed such a unit for rail service.

Congo rails in turmoil ..... p. 16

Railroads are still operating in the Congo, but a breakdown could occur any day. Most rail lines feed into river ports in a transport system which might best be called "leisurely." Railway Age obtained this eyewitness report last week.

Cover Story—Hydraulics: progress report on SP, D&RGW p.20

The first diesel-hydraulic locomotives for U.S. roads are under construction in Germany, slated for delivery in early 1961. Here's the latest report on what the six 4,000-hp units will look like, and present plans for placing the new power in service.

TOFC to Tokyo, on one waybill p.33

U. S. Freight has instituted rail-sea-highway container service between the U. S. and Japan on a regular basis. Only one bill of lading is involved.

Cover Story—New MP line to tap Ozark ore p.35

Bethlehem Steel and St. Joseph Lead Companies have teamed up to develop huge iron ore deposits in Southeast Missouri —and the Missouri Pacific is building a 28-mile branch line to handle the estimated 100 cars a day the mine operation will produce. Total cost of the new rail line is around $4 million.

'Do-it-yourself' costing p.38

The traffic officer who developed a simple costing method to determine out-of-pocket costs on specific movements of

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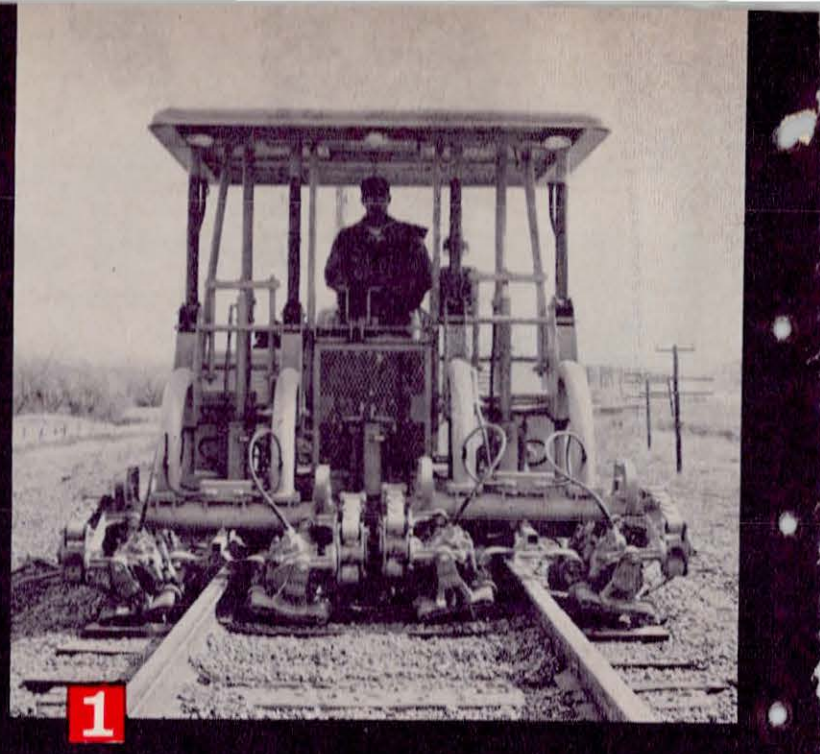

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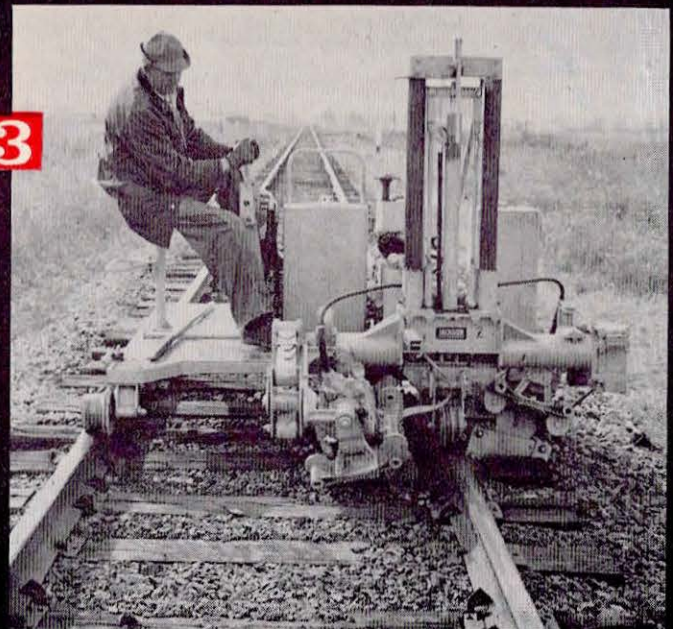

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Week at a Glance cont'd

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Operating revenues	
5 mos., 1960 ...	$4,064,090,155
5 mos., 1959 ...	4,125,693,993
Operating expenses	
5 mos., 1960 ...	3,195,545,311
5 mos., 1959 ...	3,229,846,918
Taxes	
5 mos., 1960 ...	450,170,907
5 mos., 1959 ...	438,663,308
Net railway operating income	
5 mos., 1960 ...	273,263,468
5 mos., 1959 ...	324,315,344
Net income estimated	
5 mos., 1960 ...	195,000,000
5 mos., 1959 ...	234,000,000
Carloadings revenue freight	
30 wks., 1960 ..	17,987,182
30 wks., 1959 ..	18,487,031
Freight cars on order	
July 1, 1960 ...	29,555
July 1, 1959 ...	40,973
Freight cars delivered	
6 mos., 1960 ...	31,402
6 mos., 1959 ...	18,272

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carload freight (RA, May 30, p. 32), has revised his figures to conform with suggestions from other cost experts. His new calculation shows substantially lower terminal costs.

The Action Page—Switching costs too much p.46

High unit terminal costs are offsetting, to a dangerous degree, the railroads' great economy in line-haul expense. By far the biggest terminal expense is switching. If switching efficiency could be improved 50%, railroads could go after a lot of traffic that they cannot now afford to compete for.

Short and Significant

Traffic executives of the three rate territories . . .

met in Chicago Aug. 9 to discuss numerous proposals which have been made as "ways and means of improving railway revenues." No conclusions were reached, and study and discussion of the various proposals will continue by the three rate groups, in anticipation of another national meeting to be convened in the near future.

Expedited handling . . .

of its application for authority to acquire the Minneapolis & St. Louis is sought by the Chicago & North Western. Asking that a proposed report be omitted in the case, North Western has told the ICC that acquisition before the end of this year "is essential to the realization of certain substantial tax benefits which will otherwise be lost."

Gulf-to-Atlantic water carriers . . .

account for approximately two-thirds of the ton-miles produced by all operators on domestic deep-sea routes. Their share was 64% in 1958. Runners-up were intercoastal operators with a share of 11.7%. The ICC's Bureau of Transport Economics and Statistics has computed these area breakdowns which have not previously been available.

Southern's plan to concentrate . . .

on the fireman-off work rule demand (RA, Aug. 1, p. 10) came under fire last week from BLF&E President H. E. Gilbert. In remarks prepared for delivery at a brotherhood meeting in Jacksonville, Fla., Mr. Gilbert declared that the carrier withdrew its other demands "because the public does not understand them. We are ready to prove that even the remaining notice on employment of locomotive firemen (helpers) is not in the public interest."

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Guaranteed Rates Called Illegal

➤ The Story at a Glance: The ICC has been advised that guaranteed railroad rates are unlawful under present provisions of the Interstate Commerce, Elkins and Sherman Antitrust Acts.

The advice came in a proposed report by Examiner Walter L. Baumgartner, who recommends that the Commission condemn the Soo Line's guaranteed rate on pipe and tubing which has been in effect to meet water-carrier competition since April 23.

The proposed report reflects the examiner's admiration for the railroads' enterprise in experimenting with rate innovations to hold and regain traffic. It concluded, nevertheless, that neither Soo's specific proposal, nor the "principle" of guaranteed rates, "appear to meet the tests of legality." Whether this pricing method can be used "is a question for consideration by Congress," the examiner added.

The guaranteed-rate idea will be before the ICC in comprehensive fashion when it considers Examiner Baumgartner's 76-page report recommending that the Soo Line's rate be found unlawful. In addition to the proposed report, the presentation before the Commission will include reactions of interested parties as expressed in exceptions, replies to exceptions, briefs and oral argument.

(Soo Line attorneys last week were preparing to file objections to the examiner's report. They contend that present regulatory law is broad enough to cover establishment of the guaranteed rate. Soo Line President G. Allan MacNamara said the road was "extremely disappointed" by the adverse recommendation. Said Mr. MacNamara: "We've always felt that guaranteed rates are in the public interest, and other roads have concurred.")

Only trucker and water-carrier interests object to the guaranteed rate. No shipper protested, and the National Industrial Traffic League is an intervener supporting the Soo and the principle of guaranteed rates.

The Soo rate is a charge of $10.05 per net ton, carload minimum 80,000 lb., on wrought iron or steel pipe and tubing shipped from Sault Ste. Marie, Ont., to Chicago. It is available to shippers who agree to give participating railroads 90% of their Sault Ste. Marie-Chicago pipe tonnage. The Duluth, South Shore & Atlantic joined Soo in publishing the tariff, and other participating roads have lines forming parts of Sault Ste. Marie-Chicago routes.

The guaranteed rate was originally published with an effective date of April 10, 1959. Using its seven-months suspension power to the limit, the Commission suspended the rate until November 10, 1959. The railroads then postponed it voluntarily for another 5½ months—until last April 23, when it became effective. It has an expiration date of April 10, 1961.

The guaranteed rate alternates with a normal commodity rate of $12.18 per net ton. The latter applies if the guaranty conditions are not met. The guaranteed rate was designed to promote consistent, year-round use of the all-rail routes and services, thus avoiding their maintenance as mere standby facilities for use only during periods when navigation on the Great Lakes is closed.

While the guaranteed rate is open to any shipper, large or small, who meets the 90% requirement and the other conditions, it was published specifically to get the business of Mannesman Tube Co. Mannesman also uses so-called agreed rates published by Canadian roads for shipments of pipe to destinations in Canada.

These agreed rates are like the guaranteed rates in issue. The term "guaranteed rate," as Examiner Baumgartner explained, is derived from that stipulation in the Soo tariff which guarantees that the rate won't be increased during the period of the tariff's effectiveness—unless ordered by the ICC.

The examiner's recommendation that the guaranteed rate be found unlawful under provisions of the Interstate Commerce Act is based largely on his conclusion that the rate is unjustly discriminatory under that act's Section 2. The proposed report said:

"Both the Commission and the courts hold that carrier rivalry does not constitute that dissimilarity of circumstances or conditions which warrants charging one shipper more than another

Chiefs Delay Decision on Rules Strategy

Chiefs of the five operating brotherhoods will meet again Wednesday, Aug. 17, in Cleveland—and out of this session may come a definite course of action for their handling of the work rules dispute.

The five chiefs—representing the BLE, BLF&E, BRT, ORC&B and SUNA—convened Aug. 8, then took under study a number of "possibilities" for negotiation strategy presented by brotherhood attorneys and research staffs. Discussion also covered possible union counter-proposals—but no conclusions were reached.

Consideration of a move to bring the railroads' strike insurance program to a test (presumably in connection with the recently-settled BRT strike against the Long Island) was on the agenda—but the chiefs postponed discussion of the proposal pending its submission to an RLEA meeting Wednesday in Washington.

Meanwhile, in Chicago, the carriers and the non-operating unions took a week's recess in their wage-benefit negotiations. Meetings are scheduled to resume Monday, Aug. 15.

Results of SUNA's voting on a proposed wage settlement should be known late this week. Cutoff date for balloting is Wednesday, Aug. 17. Thus far, according to one union officer returns show "no clear picture." The proposal follows the industry pattern—a 2% increase dating from July 1 and another 2% effective next March 1.

for the same service; that the dissimilarity within the meaning of Section 2 must relate to carriage."

Examiner Baumgartner found no evidence of dissimilarity relating to carriage. "The service and cost of moving a minimum 80,000-lb. carload of pipe or tubing from Sault Ste. Marie to Chicago will be the same under either rate, yet the one would move at $2.13 less per ton than the other," the proposed report said.

Other Interstate-Commerce-Act bases for condemning the guaranteed rate were found by the examiner in Section 3(1)'s prohibition against undue preference and prejudice as between shippers; failure to make the just-and-reasonable showing required by Section 1(5); and failure to show consistency with the National Transportation Policy.

The Elkins Act's Section 1 was also cited to support the recommended finding of undue preference and prejudice. The recommended findings of unlawfulness under the Sherman Antitrust Act are set out as follows:

1. The imposition and observance of the condition requiring the shipment over respondents' lines of 90% of the shipper's pipe or tubing traffic . . . during the period of time specified contemplate contracts with shippers which would preclude the competition of motor and water carriers for the traffic, and involve a conspiracy among the respondents in restraint of trade or commerce.

2. The proposal would constitute an attempt and conspiracy to monopolize a part of trade or commerce.

3. Neither the proposal nor the joint action of the railroads in considering and promulgating it would be protected from the operation by virtue of the Section 5a agreement involved.

That agreement gives anti-trust clearance to rate-making procedures of the Western Traffic Association and its member roads under provisions of the Reed-Bulwinkle Act which added Section 5a to the Interstate Commerce Act. In passing the Reed-Bulwinkle

(Continued on page 15)

Watching Washington *with Walter Taft*

• **CONGRESS'** post-convention and pre-election session is now under way with politics to the fore. The Senate convened last Monday, and the House will be back this week.

NO RAILROAD LEGISLATION is expected, though action could come on part of the program sponsored by the Railway Labor Executives' Association. The congressional disposition to "do something for labor" is always strongest in an election year.

FARTHEST ADVANCED of the RLEA proposals is the accident-reports bill. This would force the ICC to tighten its requirements for the reporting of railroad accidents. It has passed the Senate, and the House Interstate Commerce Committee was scheduled to hold hearings on it this week.

• **"NIXON DEMOCRAT"** Timothy J. Murphy, whom President Eisenhower has nominated for the ICC, is not likely to win Senate confirmation at this session. Mr. Murphy, a Boston attorney, is a registered Democrat, but he has been a supporter of Vice President Nixon since they served together in the Navy during World War II.

THE APPOINTMENT contemplated Mr. Murphy's identification as a Democrat, since the Commission already has its full quota of Republicans. The Interstate Commerce Act provides that not more than six of the Commission's 11 members can be members of the same political party.

THE APPOINTEE got a favorable report from the Senate's Interstate Commerce Committee, but the majority (Democratic) leaders have shown no inclination to call the nomination up for Senate consideration. Mr. Murphy would succeed former Commissioner Anthony F. Arpaia. If there is no action in the present session, President Eisenhower could give him a recess appointment in anticipation of seeking confirmation by the new Senate which convenes next January.

• **INTRA-STATE TRAIN-OFF** provisions of the 1958 Transportation Act are not retroactive. The provisions authorize appeal to the ICC after an adverse decision by a state authority, or if the latter fails to act within 120 days.

THE ICC SAYS it can't consider railroad petitions for relief from state-authority decisions made prior to passage of the act. That means that old cases must be submitted again to state authorities before the Commission will accept them. The Commission also says it can't consider an intra-state train-off proposal which is materially different from that presented to the state authority from which appeal is being taken.

THESE DETERMINATIONS were made by the Commission as it dismissed a Northern Pacific petition. NP sought to have the federal agency override the North Dakota Public Service Commission in a case involving proposed discontinuances of trains between Carrington and Turtle Lake and between Esmond and Oberon. Also involved were NP offers to operate substitute highway services.

THE PROPOSALS were first made in 1955, but the case dragged on until late 1959. Then the North Dakota commission approved the proposals after NP won appeals to court. Meanwhile, the road lost interest in the substitute service which was contemplated by the decision of the state commission. So NP came to the ICC with the train-off phase only. And that's what the Commission said made it a "materially different" proposal which it could not entertain.

Maine Central to Halt All Passenger Trains

The Maine Central is going out of the passenger business Sept. 6. That cut-off date was set after the Maine Supreme Court ordered the state PUC to permit discontinuance of all Maine Central passenger service.

The PUC last January turned down the railroad's total-discontinuance request, and ordered the operation of two round-trips daily—between Portland and Bangor and Portland and Vanceboro—for a year on a trial basis. The trial period would have been up next January.

In upsetting the PUC order, the state's highest court made these points:

- "The railroad is entitled to earn a fair return on its investment and is currently earning only 2.48%. This fact alone should furnish a deterrent to withholding the most obvious remedy. When the arm is hopelessly gangrenous and amputation is indicated, further delay may cause the whole body to be beset and the patient to die. The time for remedial action is now and not many months from now."
- In determining where the public interest lies, "we are not merely concerned with that segment of the public which may actually use the trains for passenger travel. It is the interest and the necessities of the whole public which must control the ultimate decision."
- No real need for continued service was shown by witnesses, who for the most part urged the retention of passenger service "either out of sentimental nostalgia for an era of railroading now past, or out of a sense of community pride, or because they desire the security of knowing that the trains are there, standing by for the day when the weather is inclement or other preferred means of transportation fail."
- The use of freight profits to subsidize unprofitable passenger service "effectively prevents the railroad from modernizing its freight carrying methods and equipment so as to remain truly competitive."
- "Representatives of business and industry, and there were many, who gave evidence . . . were unanimous in their conviction that the need for continued passenger service is negligible whereas the maintenance of good freight service by rail is absolutely essential to the economic future of Maine."
- "We think that the railroad has shown by strong and undisputed evidence that it is justly entitled to cast off now this intolerable burden and that no further delay based on illusory hopes of a reversal of trends in the field of transportation can be justified."

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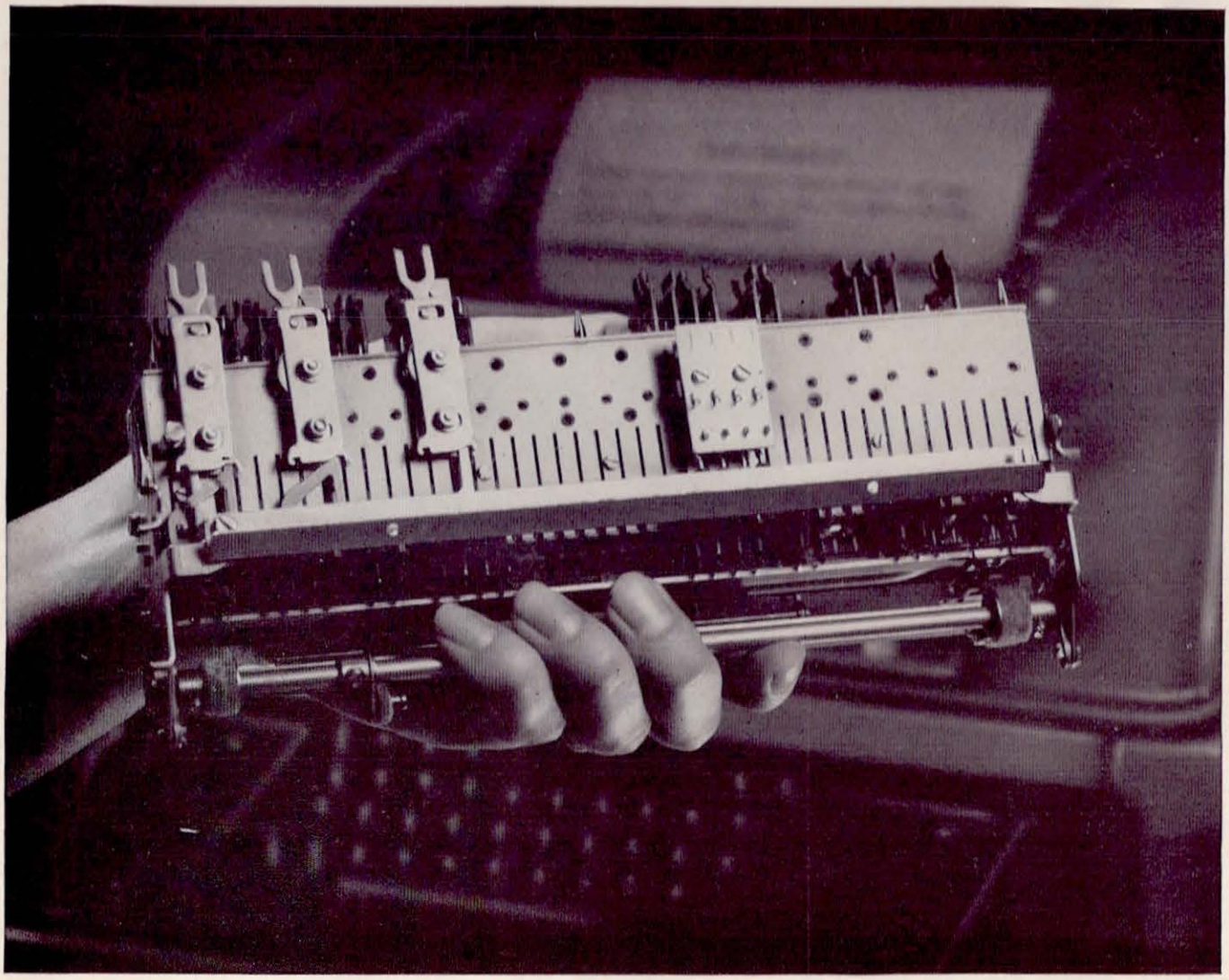

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Built into Teletype Model 28 page printers is a control device called the Stunt Box. The function of this unique component is to provide extra control facilities for both local and remote operations. Thus—in addition to transmitting, receiving and recording messages and data—the page printer can be used for a variety of switching, remote control and selective calling tasks.

The Stunt Box reduces costs by simplifying equipment needs and systems arrangements. It is the Big Plus—the extra value in Teletype Model 28 page printers and automatic send-receive sets.

Teletype Corporation manufactures this equipment for the Bell System and others who require the finest in data communications equipment.

Write for free 20-page brochure, "The Teletype 28 Stunt Box," to Teletype Corporation, Dept. 45H, 5555 Touhy Avenue, Skokie, Illinois.

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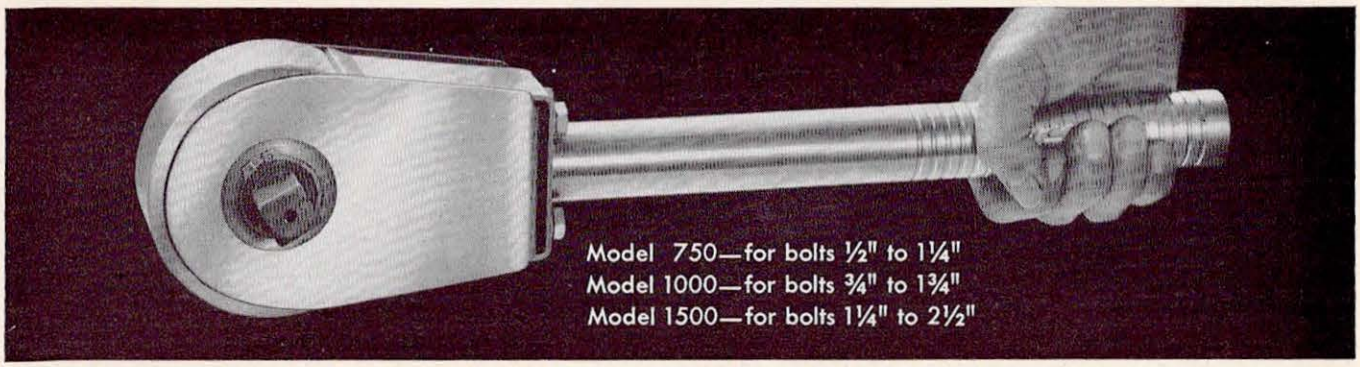
designed to solve a universal maintenance problem . . .

first manual impact wrench that works . . .

LOOSENS THE TOUGH NUTS EVEN POWER WRENCHES CAN'T BUDGE!

SWENCH®



• Loosens "frozen" nuts in seconds **• Tightens nuts to maximum practical tightness**

There's never been anything like Swench before. It is an entirely new concept in wrench design. Swench is the world's *only manual impact wrench*. Here's what Swench means to you . . .

NEW SPEED—Nuts that previously had to be burned off can now be "Swenched off"—with unbelievable ease—by *one* man—in a matter of minutes.

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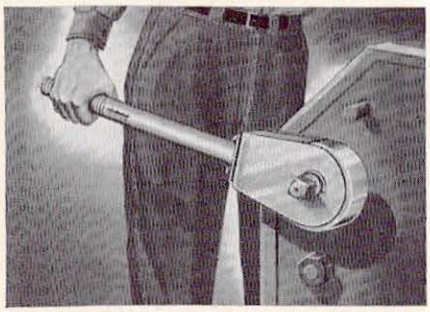
NEW SAFETY—With Swench there's no back-breaking, knuckle-knocking struggle . . . no dangerous handle extensions . . . no sudden release of a frozen nut . . . no shock transmitted through the handle.



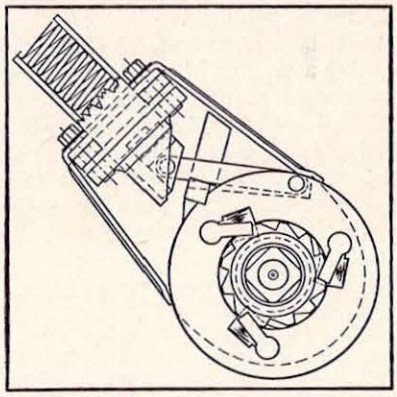
See for yourself! Swench is so different from anything you've experienced, you'll have to see it in action to believe it. For a quick and convincing demonstration, contact Marquette.

NEW POWER—Swench, size for size, gives greater—and more effective—torque than power wrenches . . . multiplies torque applied to handle over 1500% (yet all Swench's power is built into the wrench itself).

NEW ECONOMY—Swench saves in *many* ways . . . no auxiliary equipment to maintain and man, no costly upkeep on the wrench, no man-hours fighting frozen nuts—*and* Swench costs less than half as much as wrenches with comparable impact power.

NEW VERSATILITY—*One* Swench can handle more bolt sizes than any power wrench . . . loosening or tightening requires no special adjustments.

NEW TENSIONING ACCURACY—Precise tightening is assured with Swench, following simple instructions.



INSIDE STORY—How is all this possible? Unlike power wrenches that deliver many tap-like blows, or ordinary manual wrenches that apply steady torque, Swench builds up power in its super-strong spring for a mighty wallop that is released as torsional impact every time the handle is advanced slightly more than 30 degrees.

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Coming: Atomic 'Ash' Container

By B. B. BIGGS
Knolls Atomic Power Laboratory*
Schenectady, New York

Nuclear fuel, like coal, leaves a residue of "ash" after it burns. Consequently, when a nuclear core or the fuel portion of a nuclear reactor becomes exhausted the residue must be hauled away for reprocessing—to reclaim valuable U-235—and for ultimate disposal of remaining components.

Effective containers that are safe, readily handled, and reusable are of major importance in these movements, and will become increasingly important as the use of nuclear power increases and the movements of spent fuel multiply.

With all of these factors in mind, a railroad container to expedite such moves has been designed at Knolls Atomic Power Laboratory. It will be in operation soon in the movement of spent nuclear fuel across the country, and has many unique features to provide the necessary shielding, cooling, and ease of handling.

It will be a large unit, 13 ft high and weighing a quarter of a million pounds. It is recognized that this great weight, combined with the 125,000 pounds of the depressed center rail cars with a two-foot bed, may be more of a limiting factor in its use then the height. But this cannot be avoided if the need is to be met satisfactorily and safely.

The major problem in the design of such a container is the dissipation of the heat generated within the container by the "decay" of the material being carried. It is estimated that the spent fuel placed in the shipping container will be capable of producing as much as 275,000 Btu/hr of heat at the time of loading. However, at the time of shipment approximately 30 days after loading, the decay heat emitted by the spent fuel will be reduced to about 75,000 Btu/hr.

Since this material is radioactive, the container contents will not only be thermally hot but they will be radioactively "hot" as well. Both facts must be recognized and compensated for in the design: the former with features that will accommodate and dissipate the heat within the limits of any possible routine or emergency situation, the latter with adequate shielding protection for the operating personnel at dockside and during rail shipment.

Accordingly, the container has three separate cooling systems, a primary water system that surrounds the spent fuel being carried, absorbs the heat and transports it through an internal heat exchanger in the container to the secondary system that carries the heated coolant to the external heat exchangers outside the container. These exchangers have finned surfaces that dissipate the heat to the atmosphere, the air being the third system.

An emergency system goes into operation automatically if the other systems break down. It releases the heat to the atmosphere by conduction, without allowing any release of dangerous radioactive materials to the surrounding area. Since the emergency system operates because of the natural, metallurgical qualities of the materials in the container and does not depend upon any mechanical device, the possibility of a failure is small.

The container looks like a 13-ft high cylinder 7 ft in diameter mounted on its end. It has an inside bore of 55 in., in the center of which is the internal, or primary, heat exchanger that is connected by pipes through the cylinder wall to the external, or secondary heat exchangers which are 180 degrees apart at the top of the container, to improve the natural circulation characteristics of the coolant systems. Within the bore, the spent fuel being carried is stored in special aluminum containers.

During the loading operation, fans blow air over the finned tubed secondary heat exchangers and water is forced through the secondary system. However, at the time of shipment all the forced systems are turned off and all the decay heat is removed by natural circulation of the primary and secondary systems, making the systems self sustaining. The attendance or surveillance of operating personnel will not be required.

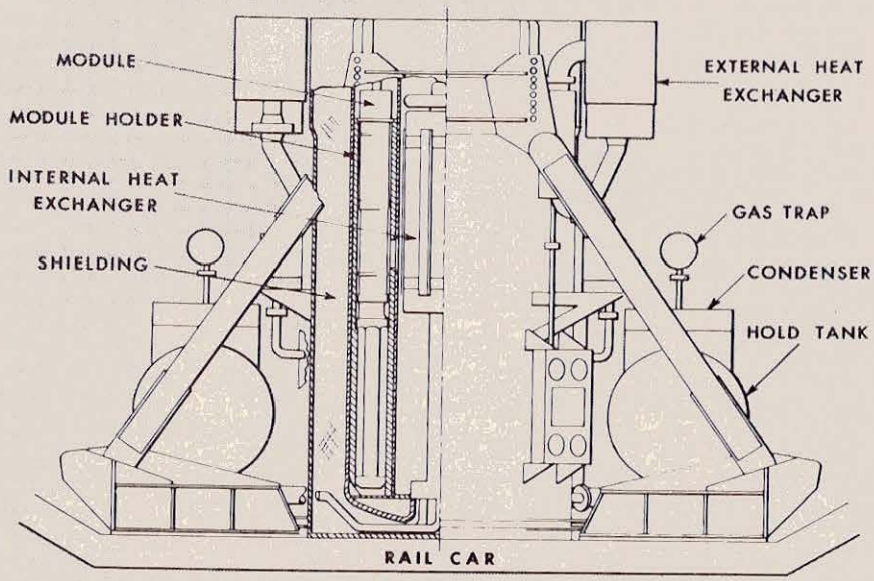
Both the primary and secondary coolants are normally water. Before loading with spent fuel, high-purity water is placed in the primary systems and normal water is used in the secondary system. Once the shipping containers are loaded, they are all self-sufficient. Consequently, no water will be added during shipment nor will any additional water for cooling be carried aboard the train.

For emergency use, salt water, diesel fuel, and the like can be used for coolants. For winter operation when shipping spent fuel with small decay heat outputs, an anti-freeze such as alcohol will be added to the primary and secondary coolant at the time the container is filled.

As has been mentioned, a special emergency cooling system is provided to prevent any incident if the primary or secondary coolants are accidentally lost during shipment. With the emergency system operative, the container will dissipate up to 75,000 Btu/hr of

(*Continued on page 41*)

*Operated by the General Electric Company for the Atomic Energy Commission.



RADIOACTIVE MATERIAL in shipping container is cooled thermally by primary and secondary water loops; design includes provision for emergency cooling.

GUARANTEED RATES CALLED ILLEGAL *(Continued from page 10)*

Act, the examiner said, Congress evinced no desire to protect from anti-trust laws any carrier activities except "agreements for joint action, the joint or concerted action taken thereunder and the common observance by the carrier participants of the rates initiated and established by such action."

Nowhere, the proposed report added, "do we find any indication of an intent to shield the group or its members or their joint action under an approved agreement, or single-carrier or group carrier action not under such an agreement, with respect to the making and observance of predatory rates or practices."

English, Canadian Laws Cited

As to his suggestion that legislation will be required to clear guaranteed rates, Examiner Baumgartner had noted that specific legislation was passed to authorize agreed charges in England and Canada. The legislation was England's Road and Rail Act of 1933 and Canada's Transport Act of 1938.

The Canadian plan was liberalized by an act of July 29, 1955. At the time of hearing in the present case, there were 682 agreed-charge contracts in effect in Canada. The reaction of Canadian shippers was reported as "generally favorable."

The examiner's understanding of the railroad industry's need to build volume by pricing innovations is pointed up from time to time as he reviews evidence in the case. Noting the country's dependence on rail transportation, he warned that the railroads cannot carry on as in the past "if their participation in the nation's traffic continues to shrink."

The national transportation policy contemplates realization of the railroads' inherent cost advantage, Mr. Baumgartner continued. He added: "Since about one-third of rail freight revenue goes to meet fixed costs and burden . . . and since increased traffic volume permits a heavier carry-down of revenues to cover fixed costs and burden, the capacity of rail carriers is best utilized for the mass production of transport service."

This means, as the examiner pointed out, that "volume must be retained or developed so as to justify fixed plant." And "only competitive pricing will retain or attract the necessary volume."

Considering evidence indicating the growth of unregulated highway and water transportation, and railroad losses to regulated trucks and water carriers, the examiner concluded that rail transportation must be made more attractive. "This," he advised, "can be done only through the market-place factors of pricing and service. The concept of the 'fair share' of traffic is outmoded in terms of national economy and efficiency in transportation."

Government promotional efforts, "which provide facilities to other modes of transport without capital investment on their part," accentuate the necessity for permitting railroads to become as competitive as possible, the examiner said. He also commented on trucker contentions that volume-building rates may result in inequalities among and between commodities.

"The equality contended for," Mr. Baumgartner said, "would appear to call for as great contribution in the aggregate to fixed costs from low-grade commodities which move at rates only slightly above out-of-pocket costs as from, say, iron or steel articles which can afford to make a greater contribution per unit and in total. The contributions of steel, coal, grain and cigarettes to burden can have no predetermined or systematic relation, one to the other, either in relative dollar amounts or as ratios to out-of-pocket costs. The rates on each traffic are the product of the unique market factors peculiar to each commodity.

"Cost elements are peculiar to each mode of transportation. The rates on movements of low-grade, volume-moving raw materials fail to cover total costs plus fair return; yet, because of the volume of movement they contribute hundreds of millions of dollars toward rail overhead burden, a burden which would be the same whether or not such traffic was handled. Contributions cannot be treated as an enforced uniform levy on shippers, but must be 'coaxed' from them on the basis of value of service considerations, and, under carrier competitive conditions, the value of service is no more than the shipper will pay."

Proceeding to his economic appraisal of the guaranteed rate, Examiner Baumgartner called it "highly compensatory," and one under which the contribution to fixed charges and return "will be enhanced or maximized." This was supported by cost evidence which showed that the rate ranges from 46% to 56% above out-of-pocket costs, depending on the load per car and route of movement. The margin over fully-distributed costs ranges from 7% to 15% on the average carload of 49.55 tons. With respect to the 40-ton carload minimum, the fully-distributed costs are higher than the rate over two of the three routes involved, but lower over the third.

With 90% of the traffic, the guaranteed rate would contribute $41,247 to fixed costs. That compares with $25,423 contributed by shipments made in the 1957-58 season—at conventional commodity rates of $12.18 per ton when lake navigation was closed and $8.28 per ton when it was open.

This pointing up of the necessity for assurances as to volume seems to have been in the mind of Examiner Baumgartner when he noted later that guaranteed rates involved less gambling than other pricing innovations. There the examiner said:

"There is a definite need for pricing mechanisms that give assurance that reductions in anticipation of greater volume will produce that volume. None of the conventional methods of volume pricing to meet competition, and particularly unregulated competition, holds anything more than ephemeral promise that essential volume and revenue will be attained or sustained. It is the consistent user of the goods or services of a given enterprise who provides the stable foundation upon which the success of the enterprise is erected . . .

'Filling the Cash Register'

"Rate reductions geared in the main to the economics of heavier loading do not meet the whole problem. None of the usual forms of incentive pricing is geared to the rail characteristics of unused capacity and the attendant high fixed costs and charges which must be met. Guaranteed or agreed rates hold promise of filling unused capacity and the cash register."

All of which indicates how reluctant the examiner must have been to arrive at his recommended findings that guaranteed rates are unlawful. The case is expected to go to the courts whichever way the Commission decides it.

If left only with recourse to Congress, as the examiner suggests, the railroads can expect a tough struggle for the necessary legislation. Truckers and water carriers may be expected to fight any such proposal in view of their current complaints against railroad rate practices and Commission decisions since enactment of the 1958 Transportation Act's rate-freedom provisions.

Meanwhile, other guaranteed-rate proposals are pending at the Commission. They include the New York Central's rate on rugs and carpets moving between Amsterdam, N.Y., and Chicago, and Frisco's rate on naval stores from Pensacola, Fla., to Chicago.

Congo Rails in Turmoil

The political troubles which have created an international crisis in the Congo since July 1 have not, as yet, closed down the new republic's railroads. As of last week most lines were still operating; however, those outside the seceded province of Katanga are beginning to face difficulties as Belgian officers and supervisors continue to pull out and be replaced by untrained native personnel.

This was the story Railway Age was told last week by Michel Struelens, Director of Tourism for the Congo, who had just arrived in the U. S. from Leopoldville. M. Struelens, a Belgian, apparently faced an uncertain future himself. Belgian funds for the promotion of travel in the Congo were cut off on July 1 and since that time the Congo has not established an office of that nature. Travel in the Congo would likely have little appeal at the moment, anyway.

M. Struelens, whose office is in the city of Bukavu on the eastern border of the country, has been in the Congo for four years. He describes the transport network there as primarily a waterways system, based on the Congo River and its tributaries, with the major rail lines feeding into river ports. There is a well-developed system of roads in the Congo, specially in the southeast, but distances are great and most commercial travel is by bus, especially in the centrally-located province of Kasai.

One of the most important rail lines, and in the past one of the busiest, is the 254-mile segment between Leopoldville, the capital, and the Atlantic seaport of Matadi. This line, part of the nationalized Otraco system, is 3-ft, 6-in. gage and almost entirely dieselized. The

Congo railways: 'leisurely'

line is the oldest in the Congo and was built to skirt the river cataracts to Leopoldville. Here, inbound and outbound traffic is tranferred to river boats.

In addition to the so-called Matadi line, which U. N. forces are now helping to keep operating, the Otraco system operates much of the river transport. Otraco has been taken over entirely by the new government. Natives who have been placed in top jobs are seeking specialists as "counselors," but most such jobs are unfilled and service is beginning to deteriorate. The boat scheduled upriver on Tuesday, Aug. 2, actually left about 9:30 p.m. Thursday.

There are two other important rail systems in the Congo, both privately owned. The larger of these, the so-called BCK system, has 1,588 route miles, including 214 miles of electrification. Most of this mileage is in Katanga where extensive mining operations require rail service. There has been no difficulty in this area, but much of the export ore traffic that formerly moved to the rail terminal of Port-Francqui, for transshipment by water to Leopoldville, is now being diverted to a shorter southern route out of the Congo and across neighboring Angola to the Atlantic port of Benguela.

The BCK's main line extends from the Rhodesian border on the south, northeast through Elisabethville and ultimately to Port-Francqui. It crosses two provinces, Katanga and Kasai. The line toward Angola branches left at a point some 150 miles north of Elisabethville. Approximately the same distance farther along, another line curves to the right and extends some 500 miles to a connection with the third major rail system, the so-called CFL.

The CFL originates at the eastern border city of Albertsville, goes east to the BCK connection and veers sharply north to another river port, Kindu. Here traffic is transferred to boat and moves down the Congo to Ponthierville. It is then transferred back to rail again to skirt a non-navigable section of the Congo, and arrives by rail at Stanleyville.

From M. Struelens description of the Congo's transport, it is evident that a breakdown in any link of the rail-water-rail system could virtually isolate important sections of the country, even an entire region. That such could occur seems entirely likely as more and more of the skilled personnel leave, and as present equipment breaks down under continued use with little maintenance.

Current Publications

NEW BOOKS

FREIGHT AND THE METROPOLIS; The Impact of America's Transport Revolutions on the New York Region, by Benjamin Chinitz. 211 pages, illustrations, tables, charts, maps. Harvard University Press, Cambridge, Mass. $4.50.

HIGHWAY AND AIRPORT ENGINEERING, by Adrian R. Legault. 483 pages, illustrations, tables, charts. Prentice-Hall, Inc., Englewood Cliffs, N.J., $11.65.

STEAM LOCOMOTIVES OF THE BURLINGTON's ROUTE, by Bernard Corbin and William Kerka. 304 pages, illustrations, drawings. For copies write Mr. Corbin, Box 219, Red Oak, Ia. $15.

ECONOMICS OF TRANSPORTATION, by D. Philip Locklin. Fifth edition, 874 pages. Richard D. Irwin, Inc., Homewood, Ill. $10.65.

ANNUALS

JOINT EQUIPMENT COMMITTEE REPORT (COSTS OF RAILROAD EQUIPMENT AND MACHINERY) August 1, 1960, PART I; JOINT VALUATION SIGNAL COMMITTEE REPORT (SIGNALING AND INTERLOCKING, SUPPLEMENT 29), July 1, 1960, PART II. Association of American Railroads, Finance, Accounting, Taxation and Valuation Dept., Transport tion Bldg., Washington 6, D.C. Free.

TRANSIT FACT BOOK, 1960 EDITION. 16 pages. American Transit Association, 355 Lexington ave., New York 17. Free.

PAMPHLETS

SILVER ANNIVERSARY JOURNAL OF THE NATIONAL MODEL RAILOAD ASSOCIATION, by A. C. Kalmbach. 17 pages, illustrations. George Allen, Editor, NMRA Bulletin, 333 Old Tarrytown Road, White Plains, N.Y. No price given.

FROM THE MANUFACTURERS

PRODUCTS FOR PROCESS INDUSTRIES. 20 pages. Services and products for the process industries. General American Transportation Corp., 135 S. LaSalle st., Chicago 3.

"precision must apply to planning, too!"

says FRANK E. CHESHIRE, Manager of Sales
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"Objective planning is more than a trend—today freight carrying rolling stock needs to be designed to a *purpose.*

"Shipper requirements, increasingly wide variety of lading characteristics, mushrooming development and adaptation of loading, stowing, and discharging methods and appurtenances, the premium on time, and overall shipping costs, all dictate purposeful design.

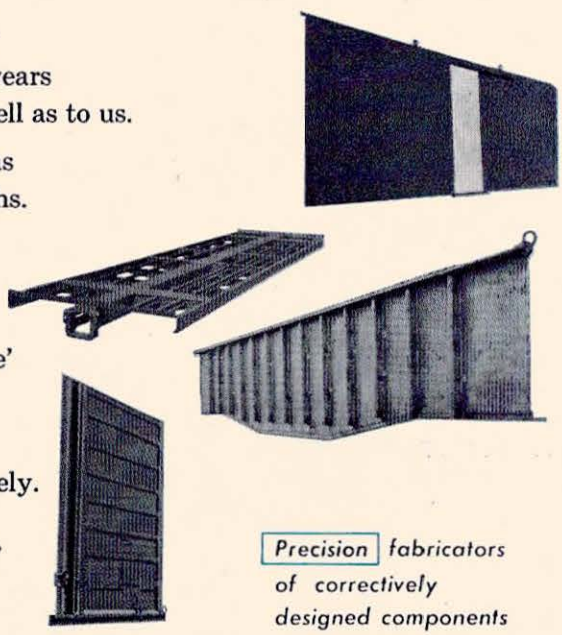
"When we started fabrication of freight car components at International Steel, our aim was to put *precision* into the design and construction of the freight car.

"Our achievements in this direction over the past ten years have been very gratifying to our customers as well as to us.

"But our aim to achieve precision in design as well as construction has led us along many paths. One of the chief elements of design (and indeed, one of the conditions for success in *any* undertaking) is definite purpose.

"An 'all-purpose' freight car is a 'no specific purpose' car for which plans are generalities. Result: limited adaptability and idle car days.

"At International Steel we plan objectively. Give us your most demanding purpose and let us put precision into its plan."



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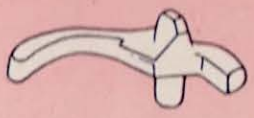
Top Lock Lifter
Assembly . . . Cat. No. E-6-A

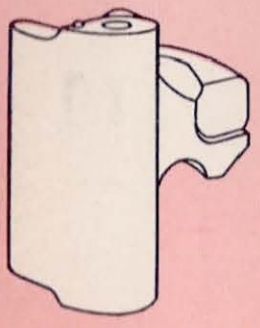
Top Lock Lifter
Hole Cap
Cat. No. E-2

Top Lock Lifter
Hole Cap
Cat. No. E-2-A

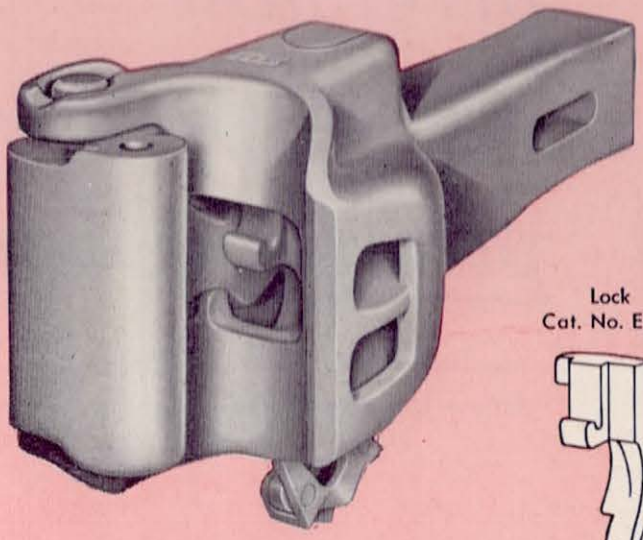


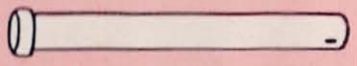
Knuckle Thrower...Cat. No. E-30

Articulated Rotary
Locklift assembly
Single . . . Cat. No. E-24-B
Double . . . Cat. No. E-25-B



Knuckle . . . Cat. No. E-50





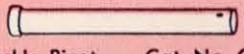
Knuckle Pivot . . . Cat. No. C-10

Lock
Cat. No. E-40

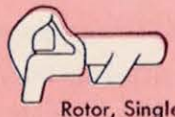
AAR Standard
Type E
Coupler Parts

New Youth for

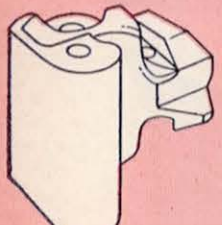
Knuckle Thrower
Cat. No. F-31



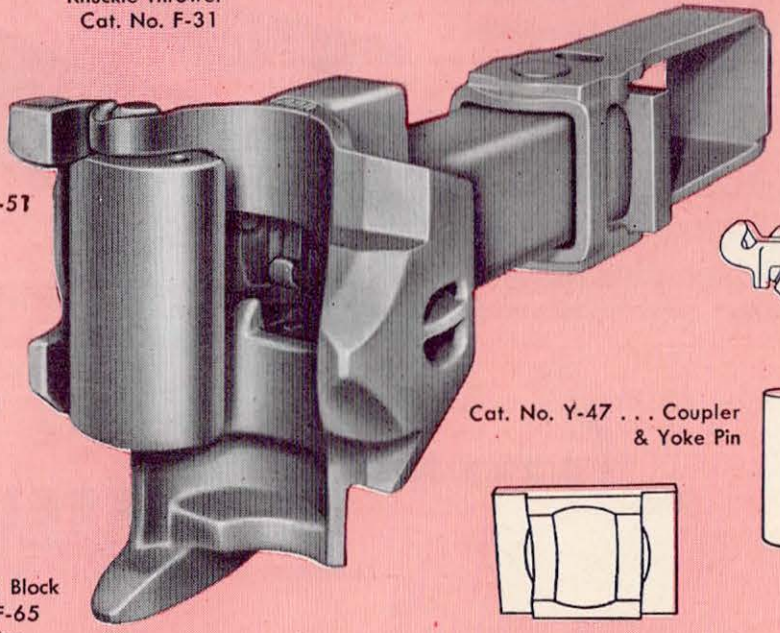
Knuckle Pivot . . . Cat. No. C-10



Rotor, Single
Cat. No. F-8



Knuckle . . . Cat. No. F-51



Lock . . . Cat. No. F-41

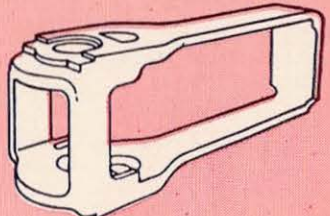
Rotary Lock
Lift Assembly
Cat. No. F-7
AND
Rotor F-8
Assembled.

Rotary Lock
Lift Assembly
Cat. No. F-7

Pin Bearing Block
Cat. No. F-65
and Spring
No. F-66

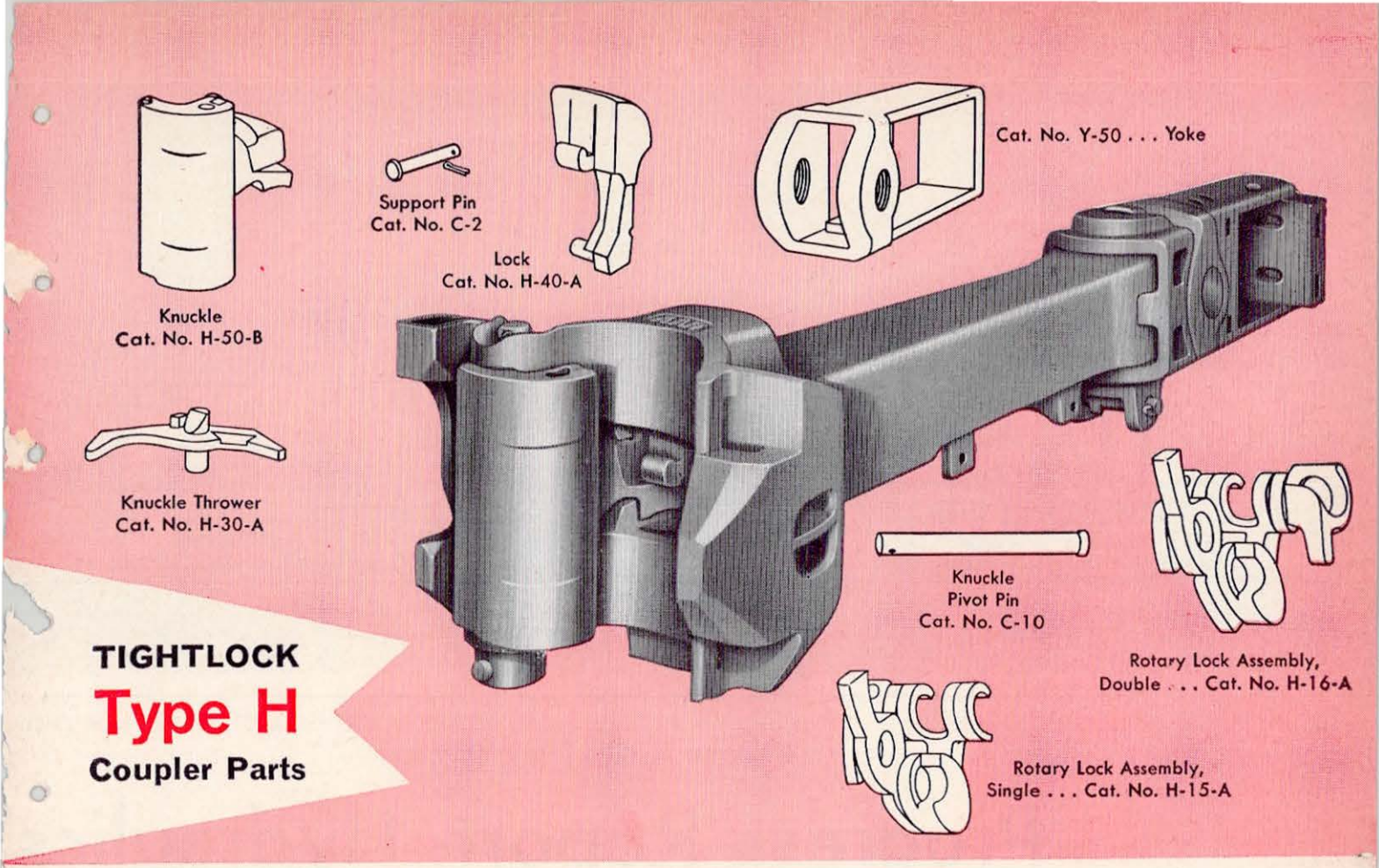
Cat. No. Y-47 . . . Coupler
& Yoke Pin

Cat. No. Y-46 . . . Follower



Cat. No. Y-45 . . . Yoke

AAR Standard
Type F
Coupler Parts



TIGHTLOCK
Type H
Coupler Parts

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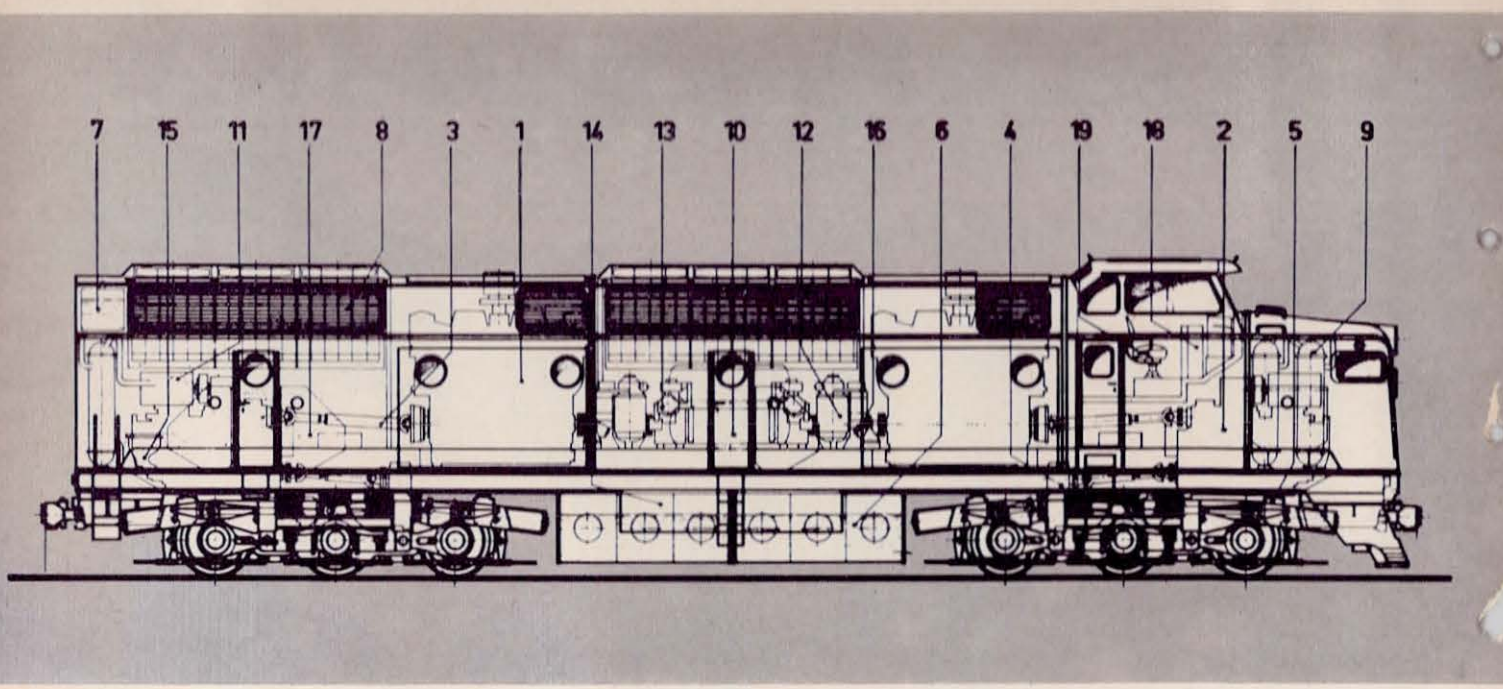
Canadian Manufacturer and Licensee: International Equipment Co., Ltd., Montreal 1, Quebec
Other Foreign Sales: American Steel Foundries, International, S.A., Chicago



INSIDE: 1. Engine. 2. Transmission. 3. Cardan shaft. 4. Intermediate gear. 5. Axle drive. 6. Fuel tank. 7. Cooling water. changer. 10. Air reservoirs. 11. Generator. 12. Cooling-water preheater. 13. Air compressor. 14. Battery. 15. Toilet. 16. Oil pump.

Progress Report: Hydraulics

German-built diesel-hydraulic freight locomotives rated at 4,000 hp should be rolling on U.S. rails in about eight months.

Early in 1961 West Germany's Krauss Maffei expects to make delivery of six units—three for the Denver & Rio Grande Western and three for the Southern Pacific. Construction of the big A units is now under way at the builder's Munich plant, and D&RGW and SP are shaping plans for operation, servicing and testing. They will use the new power in heavy freight service.

Representatives of the German builder who are now in the U.S. say design work on the SP-D&RGW units is "practically finished," frames are already built and more than half the needed materials for construction are on hand at the plant.

The first unit destined for the U.S. roads is scheduled for completion in March, after which it will be tested extensively in Germany for about 30 days prior to shipment. Both SP and D&RGW plan to have observers on hand for the tests; in fact, inspectors for the two roads will be at the KM plant beginning next month.

Meanwhile, it is understood that the head of KM's parts and service department is now in the U.S., reviewing shop conditions on the two roads, discussing what, if any, additional shop equipment may be required, and studying the problem of parts distribution. Present thinking is that supplies of smaller parts will be placed at several locations while a centralized point will be selected for storing major parts which the two roads will want to stock.

Service engineers will accompany the six diesel-hydraulics to the U.S., and will remain in this country "for some time" to help with any operating problems that may arise.

Each of the units destined for the U.S. will be 65 ft 11-5/16 in. between coupler pulling faces—approximately 10 ft longer than a General Motors GP road switcher and 4 ft shorter than a GM E-type road passenger diesel. Total weight of 144 tons for the 4,000-hp diesel-hydraulic compares with the 130-ton weight of the recently introduced 2,500-hp General Electric four-axle road switcher, and the 167 tons of the 2,400-hp Alco six-axle DL-600B road switcher. As is the case with diesel-electrics, the Krauss Maffei locomotives will be fitted for multiple unit operation.

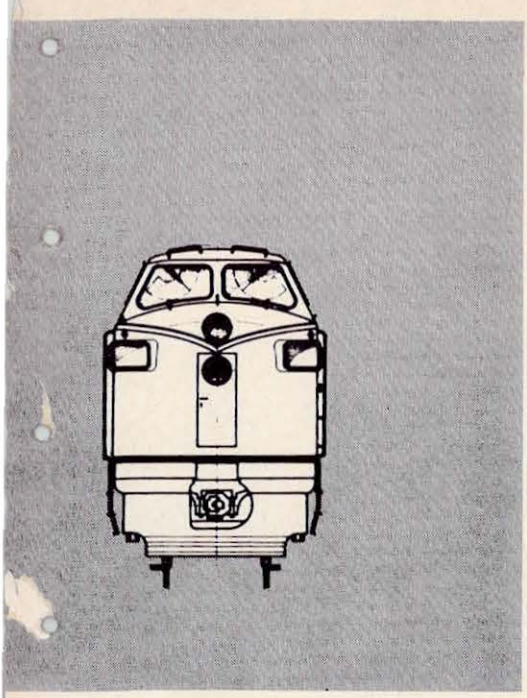
Each of the units will be powered by a pair of 2,000-hp Maybach Model MD 870 diesels—supercharged, four-cycle, 16-cylinder engines. This engine is a 60-deg Vee design with a 15-to-1 compression ratio and cylinders with 7.3-in. bore and 7.9-in. stroke. It operates at 1,500 rpm. Rated fuel consumption is 0.380 lb per bhp-hr.

First formal railroad announcement of the U.S. order was made at the June meeting of the AAR Mechanical Division meeting by SP President D. J. Russell (RA, June 20, p. 14)— although Railway Age had reported, seven months earlier, that the order was in the making (RA, Nov. 23, 1959, p. 9).

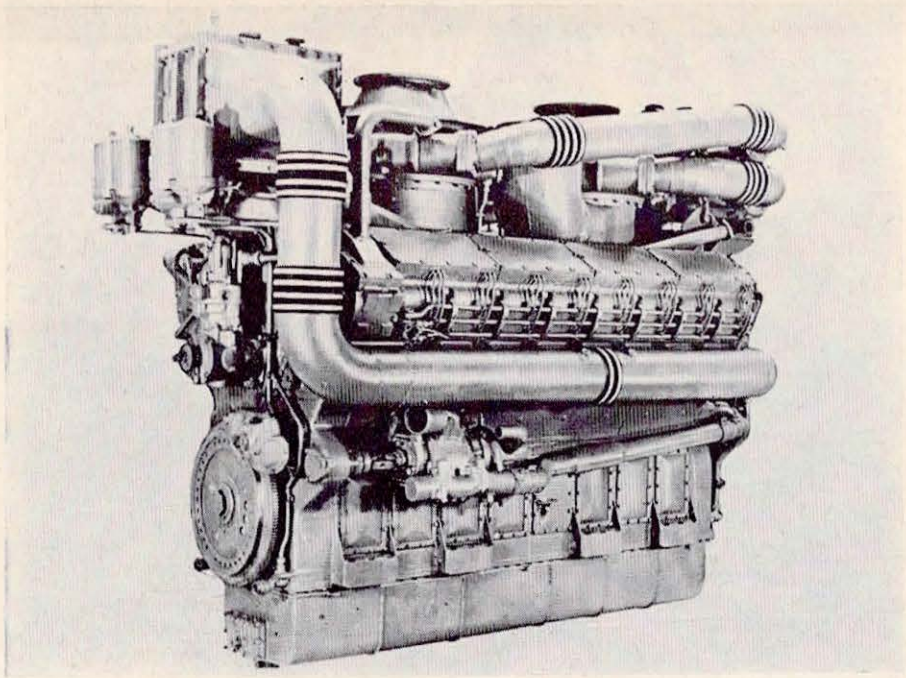
It was at this same meeting that some of the details of the new locomotive were made public by Dr. G. Wiens, head of the mechanical and equipment departments, German Federal Railways (RA, June 27, p. 66). Dr. Wiens told of the diesel-hydraulics used almost exclusively on the non-electrified lines of the German railways in preference to diesel-electrics.

He defended diesel-hydraulics against a "widespread erroneous assumption" that this transmission is suitable only for high-speed passenger service and not for heavy freight trains. The only reason West Germany's 2,200-hp V-200 diesel-hydraulics spend most of their time in passenger service, he said, is that the system sought to speed up passenger operations with the first such units delivered. From the beginning the locomotive was designed for both freight and passenger service. The 86 V-200's now in service each average between 620 and 750 locomotive-miles daily and, individually, accumulate 125,000 miles yearly.

The 650-hp diesel-hydraulic switcher —of which West Germany now has 800



8. Radiator. 9. Dynamic-brake heat ex-
17. Sand. 18. Controls. 19. Engineer's seat.



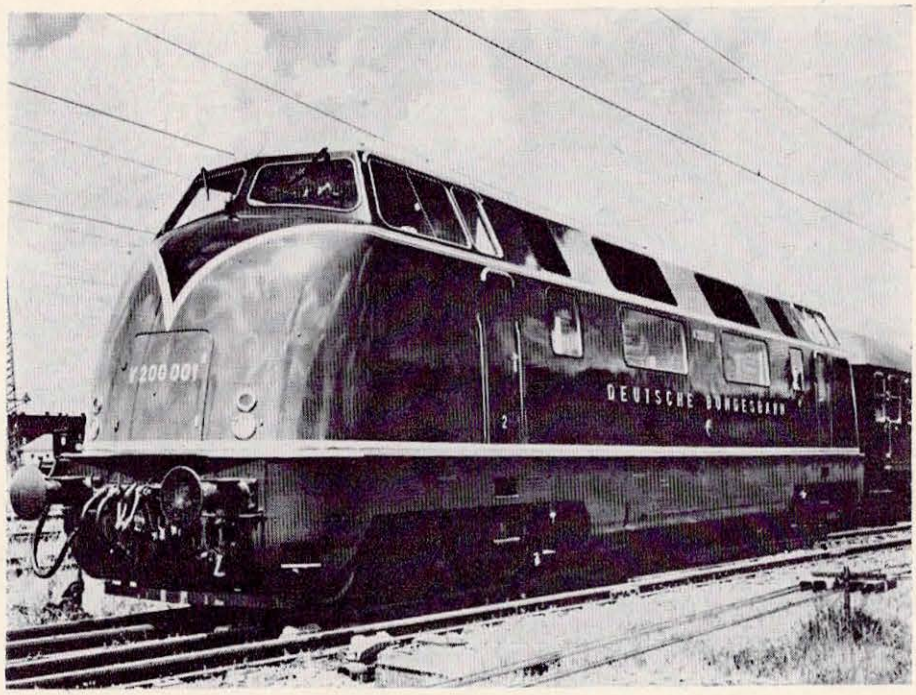
COMPACT PRIME MOVERS are factor in packing high horsepower in single units. Diesel for U.S. locomotives is a Maybach MD 870 design.

Due for '61 Delivery in U.S.

units—has been tested by placing it against a bumper and allowing it to develop full horsepower for extended periods without any transmission damage. Development of maximum tractive effort at standstill for long periods is a procedure, according to Dr. Wiens, which is not possible with any other power transmission without damage.

Starting tractive effort and maximum train-starting ability depend on locomotive power, its transmission, and the factor of adhesion. Because several axles are coupled through a hydraulic transmission, it is possible to rely on higher coefficients of adhesion than is possible with the single-axle drives used on most diesel-electrics. It is not possible to slip a single pair of drivers. Dr. Wiens also claimed that there is less weight transfer during starting. "With locomotive weights being equal, a locomotive equipped with hydraulic group drive will develop high starting tractive efforts and will be capable of pulling heavier trains on grades than a locomotive equipped with individual axle drive.

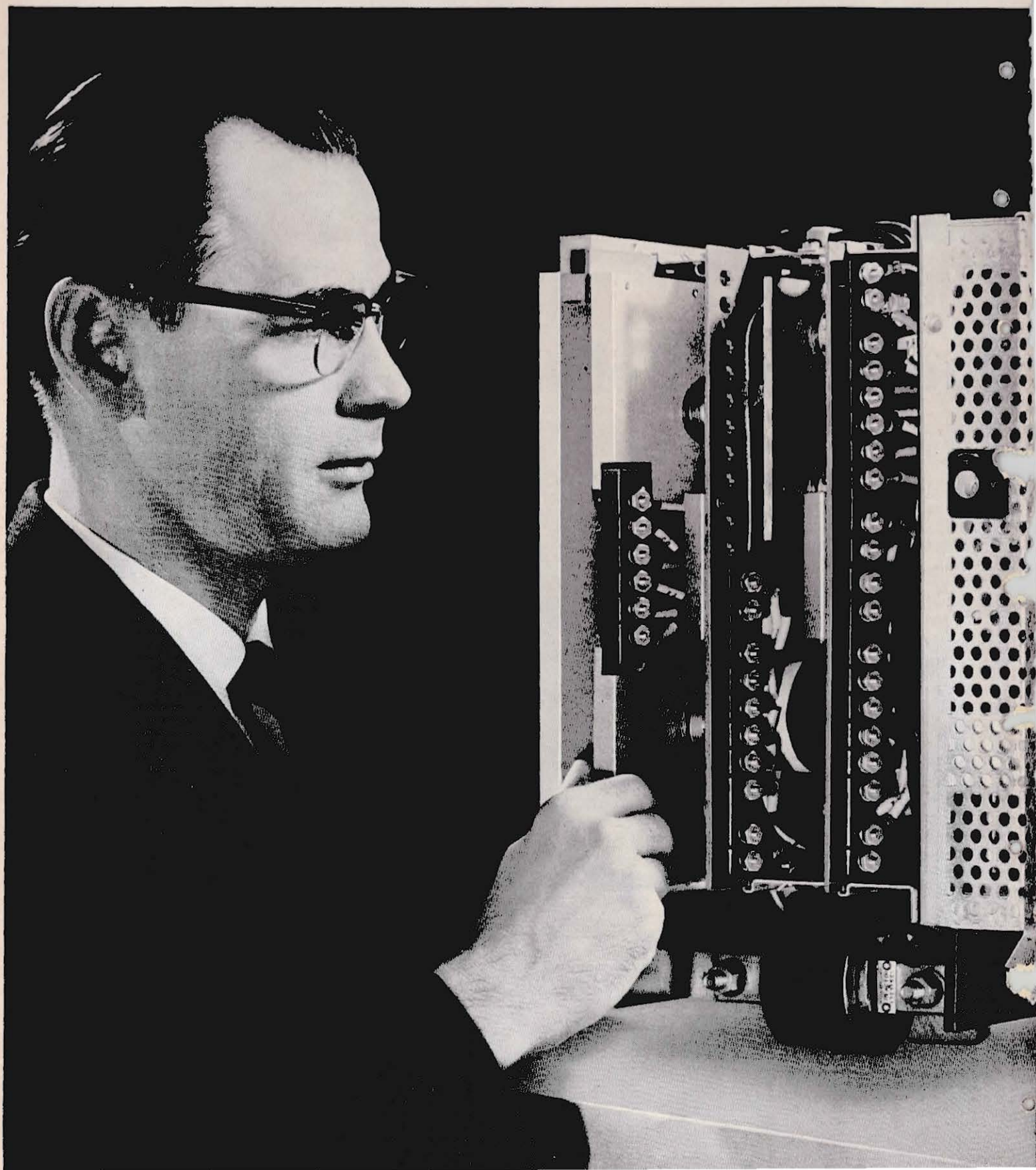
"The hydraulic transmission meets all continue tractive effort requirements. With extremely low speeds, the full diesel engine output can be transmitted with no time limit whatsoever . . ." The heat which develops in the hydraulic transmission can be dissipated by circulating the transmission oil through external radiators or heat exchangers.



GERMAN ROAD LOCOMOTIVE, the V-200 diesel-hydraulic, is used on both freight and passenger trains. It is equipped with a steam generator. Originally rated at 2,200 hp, recent engine developments have made possible an increase in rating to 2,700 hp. Unit handles 250 tons (6 coaches) on highspeed expresses, and up to 15 coaches (650 tons) on heavy passenger trains. The 86 units now in service operate 15,000,000 miles annually. Additional purchases of these units are planned. Engine maintenance is calculated to be $16 per 1000 miles, transmission maintenance is $9. Over the estimated 30-year life of these locomotives, all maintenance is expected to average 14.2 cents per locomotive mile.

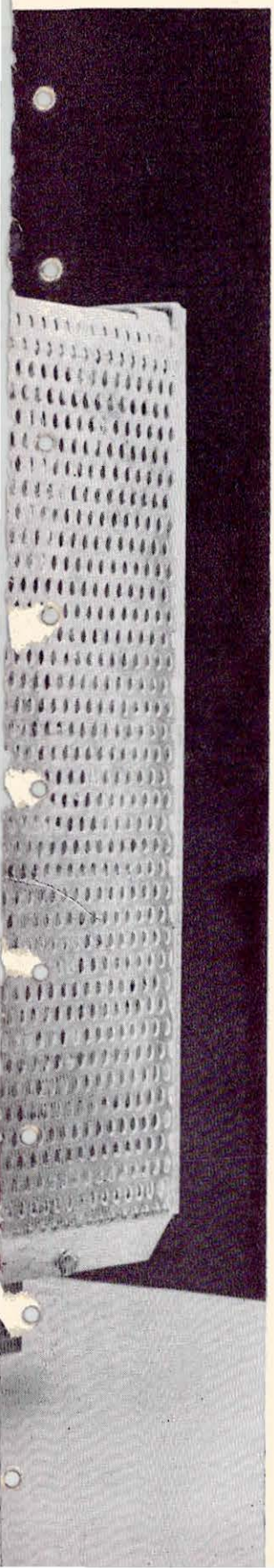
another General Electric

NEW Transistorized STATIC



CERTIFIED renewal part

VOLTAGE REGULATOR



Reduces Maintenance, Minimizes Downtime

General Electric now offers you a transistorized regulator design which eliminates contacts and moving parts. Electrical components are card-mounted. Functional circuits are on separate, easily removed cards. Electrical connections are made to readily accessible terminals at the front of each card. General Electric's new transistorized Static Voltage Regulator gives fast, reliable voltage regulation at low cost for a wide variety of auxiliary generators. Makes maintenance easy, minimizes downtime. Optional built-in reactor-type current limit protection.

For more information, contact your General Electric Railroad Regional Parts Center or write for Bulletin GEA-7068, Section 106-01, General Electric Company, Schenectady 5, New York.

Progress Is Our Most Important Product

GENERAL ELECTRIC

G-E Regional Parts Centers are located in Los Angeles . . . Chicago . . . St. Louis . . . Atlanta . . . Erie

New AAR Standards give

IMPROVED OVERALL PERFORMANCE

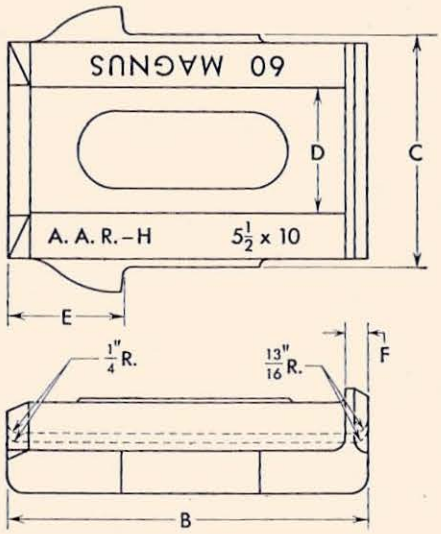
New raised back bearing design improves load distribution, reduces lateral play, balances thrust loads and reduces wiping at both fillets—promises a new high in solid bearing performance and economy

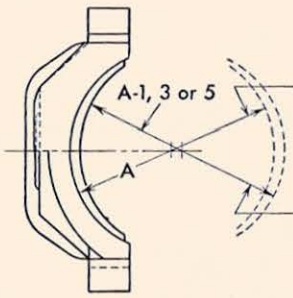
IN THE NEW AAR standard bearing design, there are a number of important changes which will improve overall performances on both new and old cars. The principal design changes and their advantages are as follows.

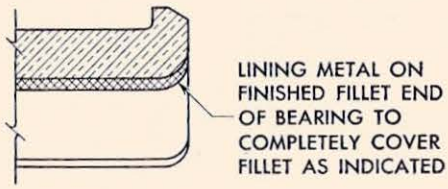
A new raised seat pad on the bearing back gives controlled radial load distribution—puts preferential loading in the middle of the journal where lubrication is more abundant and uniform at all times. This lowers operating temperatures, builds up bearing miles.

Magnus Solid Bearings

NEW A. A. R. STANDARD JOURNAL BEARINGS







CLASS	SIZE JOURNAL	DIMENSIONS IN INCHES													
		A	Std.	Step Sizes		Std.	Step Sizes		C	D	Std.	Step Sizes		Std.	Step Sizes	
			A-1	A-3	A-5	B-1	B-3	B-5			E-1	E-3	E-5	F-1	F-3	F-5
C	5 x 9	5.015	5.015	4.890	4.765	$8\frac{3}{4}$	$8\frac{27}{32}$	$8\frac{15}{16}$	$5\frac{3}{8}$	$3\frac{1}{4}$	$2\frac{29}{32}$	$2\frac{15}{16}$	$2\frac{31}{32}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$
D	$5\frac{1}{2}$ x 10	5.515	5.515	5.390	5.265	$9\frac{3}{4}$	$9\frac{27}{32}$	$9\frac{15}{16}$	$5\frac{7}{8}$	$3\frac{1}{4}$	$3\frac{13}{32}$	$3\frac{7}{16}$	$3\frac{15}{32}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$
E	6 x 11	6.015	6.015	5.890	5.765	$10\frac{3}{4}$	$10\frac{27}{32}$	$10\frac{15}{16}$	$6\frac{7}{8}$	$3\frac{5}{8}$	$3\frac{15}{32}$	$3\frac{1}{2}$	$3\frac{17}{32}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$
F	$6\frac{1}{2}$ x 12	6.515	6.515	6.390	6.265	$11\frac{3}{4}$	$11\frac{27}{32}$	$11\frac{15}{16}$	$7\frac{3}{8}$	$4\frac{1}{8}$	$3\frac{31}{32}$	4	$4\frac{1}{32}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$

MAGNUS
METAL CORPORATION

Standard bearings are increased ¼" in overall length, giving greater bearing area and reduced lateral play. Step sizes are also increased in length (see above), tending to reduce lateral play on worn journals. This, together with new lug location, gives more balanced thrust loading than standard bearings have ever had before. Fillet radii have been increased at both ends of the bearing for further reduction in end wear and reduced wiping of the babbitt at both fillets.

These design modifications should help establish a new high in the performance of low-cost solid bearings. For further information write to Magnus Metal Corporation, 111 Broadway, New York 6, or 80 E. Jackson Blvd., Chicago 4, Ill.

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Subsidiary of **NATIONAL LEAD COMPANY**

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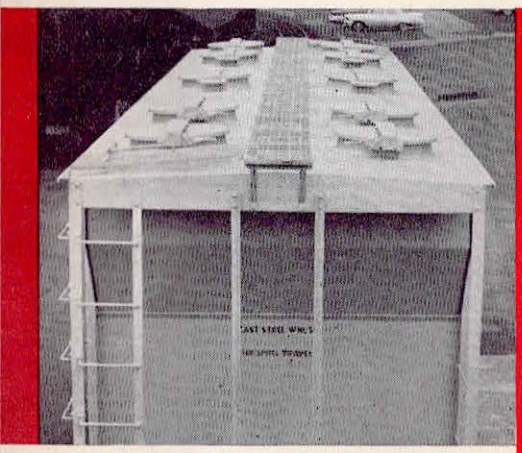
ANOTHER BENEFIT OF

P-S FULL LINE

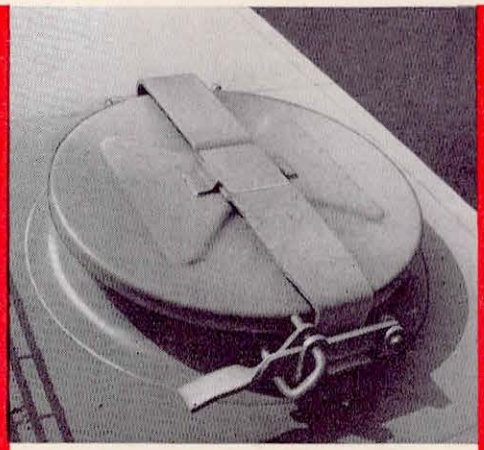
STANDARDIZATION

PS-2 COVERED HOPPER CAR

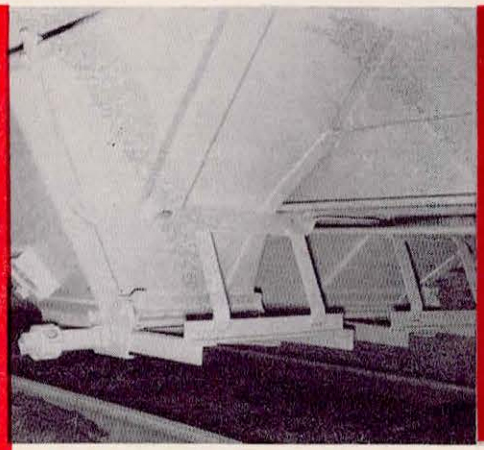
...The Ideal Way To Ship Bulk Lading



PS-2 ROOF—Smooth and almost flat, the PS-2 roof provides a safe, ample working area for loading crews. The use of circular roof hatches, the smooth, all-welded design and bulb angle side plates eliminate catch-all ledges, keep roof cleaner. Hatch covers open longitudinally.



PS-2 HATCH AND HATCH COVER—Contains simple lock and hinge pin arrangement with no loose parts. Upper lip of circular coaming is curved down to help exclude weather and dirt. The hatch cover fits tightly on the curved lip making a positive seal on the entire circumference.



PS-2 OUTLET GATE—Built for positive, easy action, the PS-2 Outlet Gate provides 11-inches of clearance between rail and bottom of gate. Hopper sheets are designed and sloped to facilitate unloading with chute openings placed to fit existing unloading accommodations.

The Standardized PS-2 Covered Hopper Car has been designed with both the railroad and the shipper in mind. Here's a freight car that will handle lading fast . . . thus cutting costly manhours. It will keep lading safe, clean, and dry . . . reducing damage claims for spoiled or lost bulk lading. And it is completely self cleaning . . . eliminating the need for car clean-out or hand unloading.

From rail to roof the PS-2 has been built to satisfy shipper demands for loading and unloading convenience while meeting railroad owner requirements for dependable service with minimum maintenance. Available in two or three hopper models, the PS-2 is offered in four capacities . . . 2007, 2929, 3215, or 3506 cubic feet. There's a choice of outlet gate arrangements available plus optional pneumatic unloading devices and special protective coatings for the car interior. In every aspect, the PS-2 is the ideal way to ship bulk lading ranging from sand or cement to grains or chemicals.

Whether you order in lots of 1 or 1,000 you receive all the benefits of P-S Standardization with your purchase of PS-2 Covered Hopper Cars. Already, 59 railroads and other users have put into service or have on order over 16,000 PS-2s to give their shippers the finest in dry, granular, bulk lading freight cars.

THIS BROCHURE IS YOURS ON REQUEST. Includes complete information on the PS-2 Covered Hopper Car—its features, details of construction, and general dimensions as well as complete specifications. Write today for your free copy. See how P-S Standardization makes the PS-2 your best investment in covered hopper cars.

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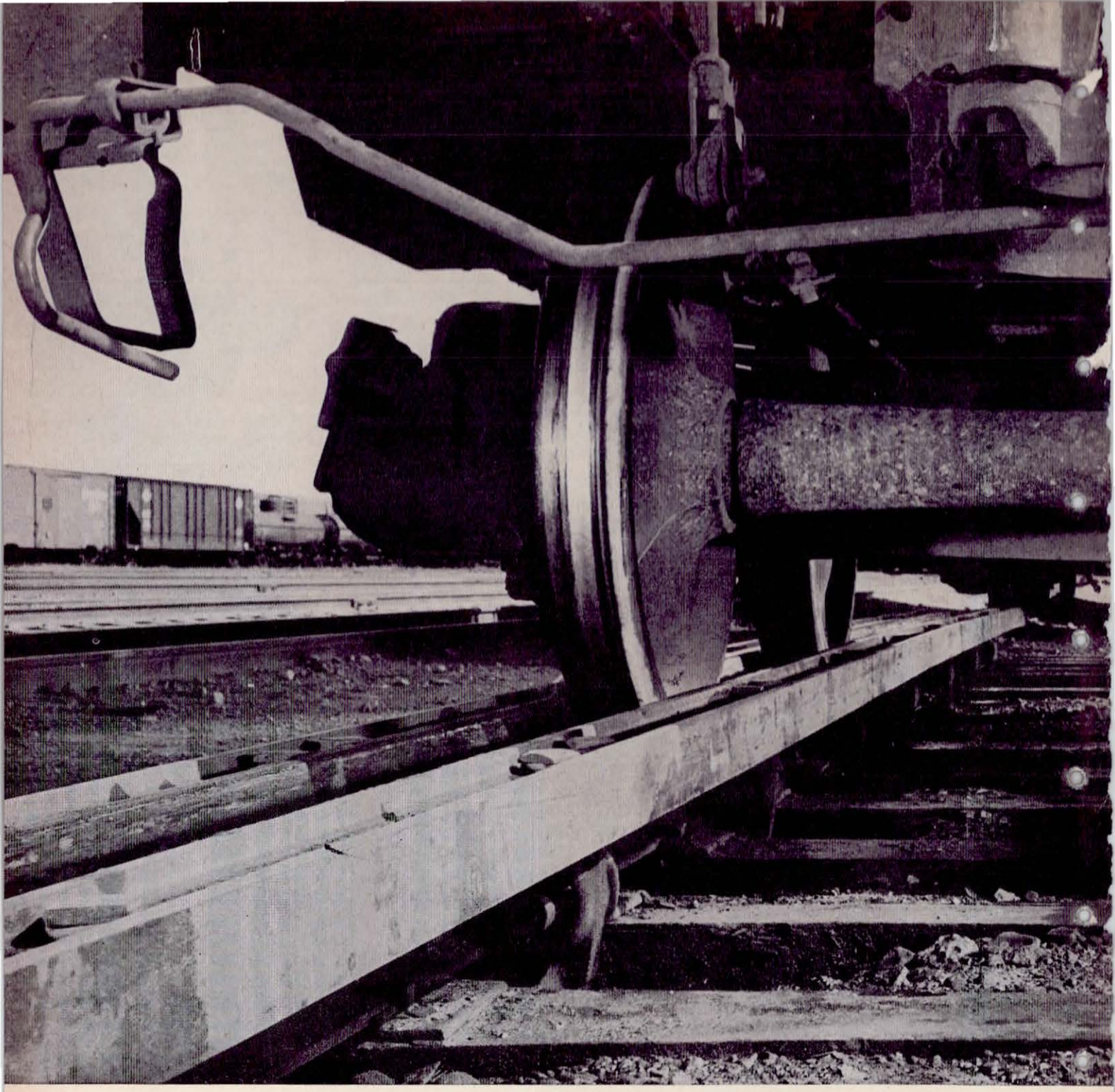


The Racor Mechanical Car Retarder applies braking force to both sides of every car wheel that

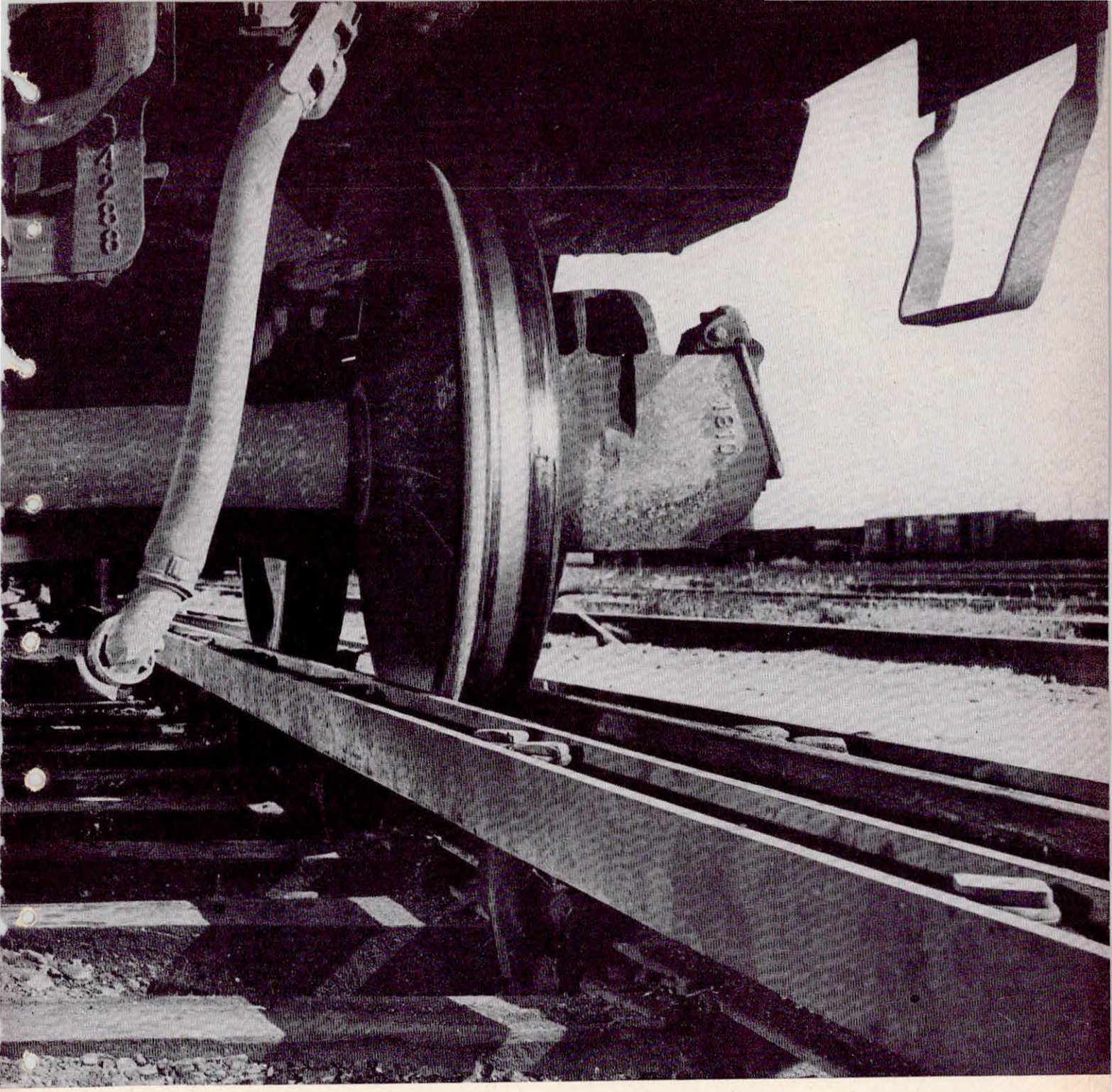
No skates needed here!

NEW RACOR® MECHANICAL CAR RETARDER* IS COMPLETELY AUTOMATIC!

**(Patent Applied For)*

No skates or skate men are needed in gravity classification yards with this new Racor Mechanical Car Retarder at the end of each track! The consequent reduction in operating expense will amortize the cost of the retarders in a short time. Still further savings accrue from reduced damage to lading through absorption of impact as cars come together.

The Racor Mechanical Car Retarder has been designed to bring rolling cars to a stop at the end of gravity classification yard track and to resist their further movement by the impact of succeeding cars. The



enters it. Once adjusted, it needs no further attention—operation is completely automatic.

retarder consists of spring loaded rails which apply retarding force simultaneously to both rim and flange of each pair of wheels. It applies opposing forces in such a way as to eliminate the possibility of derailment. Retarding action is entirely mechanical, and no difficulty is encountered in moving either the cars or the locomotive through the retarder when the track is being "pulled".

Your American Brake Shoe representative will be glad to make a study of the operation of *your* yard in order to determine the savings that can be derived from the installation of Racor Mechanical Car Retarders. American Brake Shoe Company, Railroad Products Division, 530 Fifth Avenue, New York 36, N. Y.

A-5962

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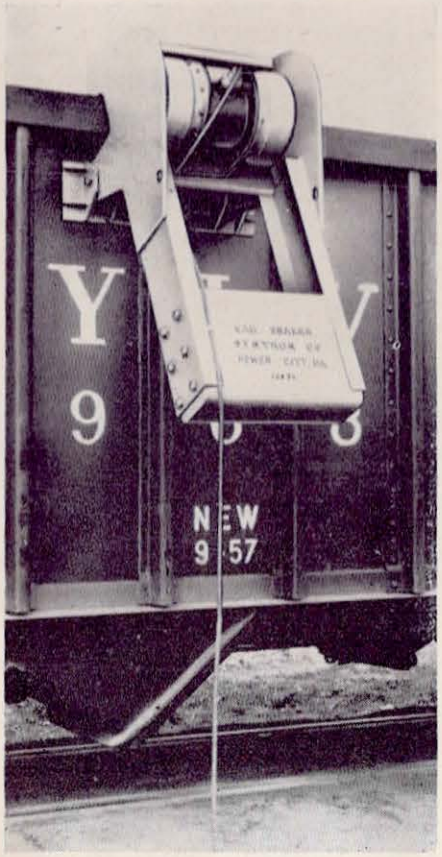
In Canada: Dominion Brake Shoe Company, Ltd.

Quality products cut your ton-mile costs

New Products Report



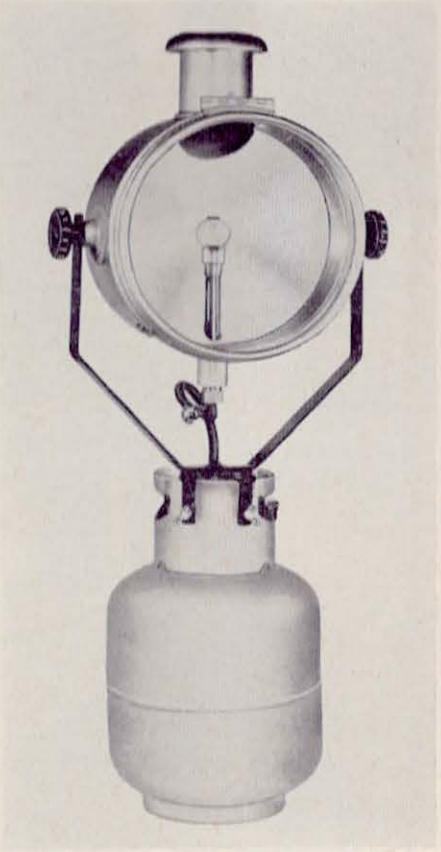
Car Shaker

The rotary vibrator car shaker, with its balancing counterweight, can be mounted anywhere along the length of a car by means of a jib crane or fork lift. Its steel frame hooks over light or heavy flanged car sides. There are no chains or rods to tighten, and no need for going in, on, or under car. The vibrator produces 900 vibrations per minute, operating from a 220- or 440-volt a-c supply. *Syntron Co., Dept. RA, 1469 Lexington Ave., Homer City, Pa.*

Traxcavator

An addition to the Caterpillar line of track-type Traxcavators has been announced. Designated the 977 Series H, the new machine is said to have as much as 25% greater productivity than previous models under average job conditions. It is powered by a 150-hp turbocharged diesel engine and has a 2½-cu-yd bucket as standard equipment and a new power shift transmission. The latter enables single-lever shifting during all phases of the work cycle. The operator can choose between a high and low work range, each having two gear speeds for forward and reverse.

The 977H incorporates a new hydraulic system which reduces bucket-cycle time and is said to deliver greater lifting force. It has a hydraulic breakout force of 25,500 lb and will lift 17,000 lb to full maximum height. The automatic bucket positioner and kickout, 40-deg tilt back, three grouser track shoes, and hydraulic steering boosters have been retained in the new machine. *Caterpillar Tractor Company, Dept. RA, Peoria, Ill.*



Portable Floodlight

The anodized-aluminum Leelight BL-130 propane floodlight is an all-weatherized unit. It is said to provide a white light of approximately 15,000 cp at maximum pressure of 15 lb for 50 hp on a 20-lb tank of L-P gas. Mountings with Twin-lite model 130C include a tank bracket and a 4- to 8-ft telescopic stand. The light weighs 15½ lb; with stand, 48½ lb; with bracket and fuel, 56 lb. *Wm. W. Lee & Son, Dept. RA, 20 East Jackson Blvd., Chicago 4.*

Doorless Acousti-Booth

Clear, distinct telephone conversations can be carried on inside the Burgess-Manning "Hear-Here" Doorless Acousti-Booth despite external, disturbing noises. Acoustically designed to provide a room of quiet privacy, the Doorless Acousti-Booths soak up machine, traffic and crowd noises before they interfere with clear hearing and distinct speech. *Burgess-Manning Co., Dept. RA, 749 East Park Ave., Libertyville, Illinois.*

Commutator Bearing

The Klany type bearing for the commutator position combines into a single unit the functions of the separate traction-motor axle support bearing and the dust guard. The outside diameter of the commutator end collar of the support bearing is increased, and the collar's end surface has an annular recess which holds a felt seal. Together, these features produce a dust guard integral with the bearing. *Magnus Metal Corp., Dept. RA, 111 Broadway, New York 6.*

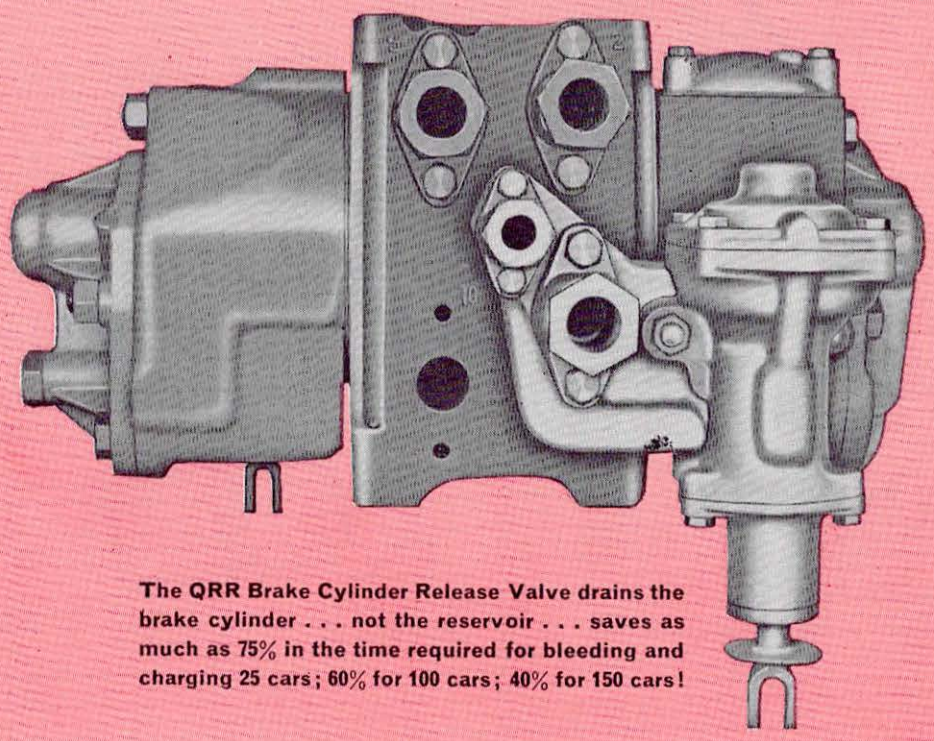
Protective Coating

Fiberglas Flake—a mixture of Fiberglas flake, resin, fillers, accelerator and pigment (if desired) for use where corrosion is a major problem—gives a corrosion-resistant surface to metals, wood and concrete. A spray gun unit has been designed by the DeVilbiss Co. for applying the coating. *Owens-Corning Fiberglas Corp., Dept. RA, 717 Fifth Ave., New York 22, or DeVilbiss Co., Dept. RA, 300 Phillips Ave., Toledo 1.*

To expedite the handling of freight trains through yards . . .

Install Westinghouse QRR Brake Cylinder Release Valves now

—and start saving time and money immediately!



The QRR Brake Cylinder Release Valve drains the brake cylinder . . . not the reservoir . . . saves as much as 75% in the time required for bleeding and charging 25 cars; 60% for 100 cars; 40% for 150 cars!

The more cars equipped with Westinghouse QRR valves, the greater the benefits . . . to everybody concerned with the movement of cars through yards. Westinghouse QRR Brake Cylinder Release Valves are real time savers in any switching operation around classification yards because they drain only the brake cylinder simply by tripping the handle. Reservoir air is retained and time formerly needed to drain reservoirs is saved. This makes it possible to bleed and recharge 100 cars in less than half the time it takes the old way.

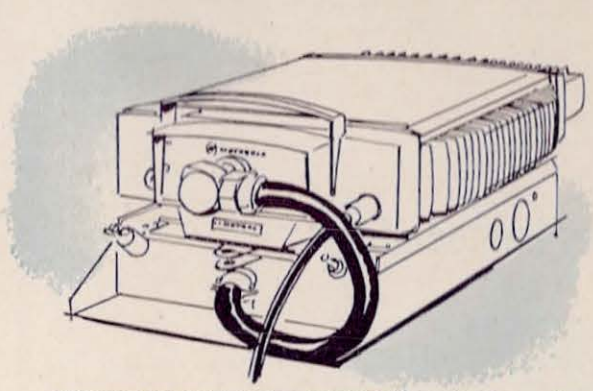
Westinghouse Air Brake Company can fill your orders for QRR's now!

We manufacture QRR Brake Cylinder Release Valves to the usual Westinghouse high standard of quality . . . according to A.A.R. requirements.

Adapter Kit with QRR Valve, adapter filling piece and mounting details, is supplied for easy application to Westinghouse AB Valves in service (shown on photo). Complete details are covered in Service Bulletin 108-7. For new Westinghouse AB equipment the pipe bracket is arranged for direct mounting of the QRR Valve. Write or phone for additional information.

Westinghouse Air Brake
COMPANY
AIR BRAKE DIVISION WILMERDING, PENNA.

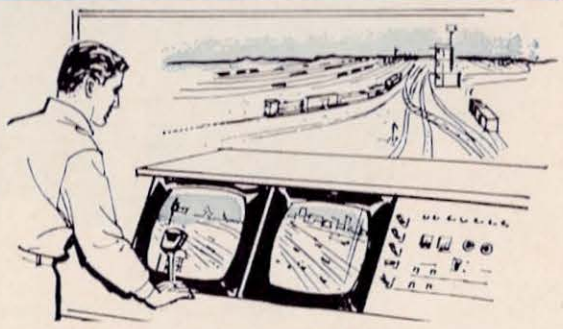
CALL ON MOTOROLA... for all communication needs



"MOTRAC" 64/12-VOLT RAILROAD RADIO . . . the only AAR single-package unit with completely transistorized receiver and power supply. No need to change power supply, one radio serves both 64 and 12-volt DC uses. Adapter available for 117-volt, 60 cycle base station operation without radio modification.

"MOTRAC" UNIVERSAL RAILROAD RADIO . . . the first completely integrated railroad radio—contains MOTRAC, 64/12-volt radio unit, handset, two speakers, and controls. Designed for diesel, caboose, and maintenance-of-way use. The complete unit is mounted vertically in a "T-frame" bracket. Only the "T-frame" and antenna remains mounted on the rolling stock when radio set is removed.

"HANDIE-TALKIE" PORTABLE RADIOPHONE . . . for yard, terminal and maintenance-of-way operations. Choose from 45 models designed to give highest power output and lowest possible weight. Available in mike and speaker or handset models with standard cells or rechargeable nickel-cadmium batteries.



CLOSED CIRCUIT TV MONITORING . . . for the ultimate in personalized control over yard and terminal operations. Now, you can monitor one or several operations from a single point. Full remote control provides flexible camera operation over wide areas.

MICROWAVE RELAY SYSTEMS . . . end wireline "saturation" problems. With **service-proved** Motorola microwave, you can handle all of your voice messages, with space to spare for telegraph, VHF 2-way radio, television, and present or proposed high speed data transmission links.

Motorola gives you MORE... in communications, service, satisfaction.

Quality design with service-proved performance is the foundation of Motorola leadership in railroad communications. With such continuing leadership achievements as MOTRAC Universal 64/12-Volt Railroad Radio backed by the widest range of audio and visual communications, you can call on Motorola with full confidence. Large and small, every Motorola system is custom designed to specific user requirements. You'll find Motorola equipment lasts longer, works better—therefore costs less to own and operate. Your Motorola representative will give you full facts and figures.

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INTERNATIONAL container service, initiated last week, will be provided on a regular basis between U.S. points and Japan. Containers will move by rail in U.S., cross the Pacific by ship, and go by truck from Japanese ports.

TOFC to Tokyo, on One Waybill

Freight between U.S. points and the Orient, moved on one bill of lading, by one carrier, on one charge . . .

That is the substance of what U. S. Freight is setting up in its new container service to and from Japan.

The forwarder company is investing $1 million in container equipment and is leasing 25 85-ft Flexi-Van cars for use in the continental segment of the service. The containers include 40-ft "boxes" and 50 so-called Strick-tainer units. The latter consist of two 20-ft boxes that lock together as a single unit for intercity movement but can be separated as separate 20-ft units for pick-up and delivery service. All equipment for the operation is being built by Strick Trailer Co.

Initially the ocean segment of the international container service will be handled by States Marine, although the door is held open to other ship operators if they wish to participate. Mr. Forgash reports that container studies by States Marine "have closely paralleled our own" and he indicated last week that the present service to the Orient may shortly be expanded to provide similar service "across the Atlantic."

The initial shipment will move from a Japanese port to Tokyo via highway.

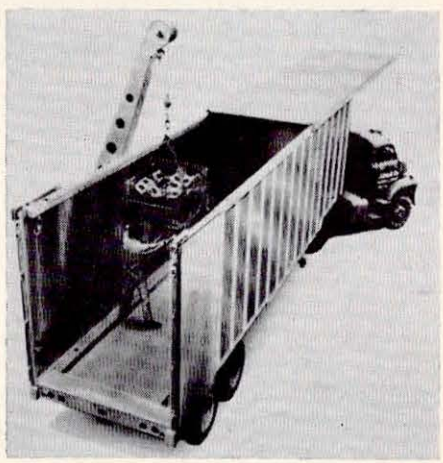
From a railroad standpoint, announcement of the new container service contained evidence of a major breakthrough in freight train speed. The New York-Los Angeles service is based on a 3½-day schedule, coast-to-coast, with present routing via New York Central, Burlington and Union Pacific.

Illustrating his comment about speed of the container service, Mr. Forgash noted that NYC's westbound Super-Van train (SV-1) is scheduled from New York to Chicago in 23 hours, arriving in Chicago at 9:30 p.m. Connection with the Burlington is via Chicago Junction, with cars being moved through to connect with the outbound CB&Q train at 4 a.m. Similar line-haul speed and connections are maintained all the way to Los Angeles, he said.

The U. S. Freight officer said he believes the international container service will grow rapidly as both shippers and carriers realize how much they can cut packaging and transportation costs. He pointed out that on a recent shipment of outboard motors from the Twin Cities to Antwerp, where a Flexi-Van container was used, the shipper saved $850 in packaging costs alone.

Moreover, Mr. Forgash said, the initiation of international container service is a quick way to obtain experience in coordination of transport—experience that can be put to use in this country.

NEW TANK CONTAINER fits Flexi-Van car or highway chassis. This 40-ft unit is first of its type built for container-TOFC service.



BOX WITH SLIDING ROOF combines merits of open top and closed van. Demountable box is modern version of earlier piggyback trailer.

Letters from Readers

'Double Bottoms'

San Francisco, Calif.

To the Editor:

In reporting in Railway Age on the matter of operation of vehicular trailer trains on interstate system highways and eastern toll roads, it has been observed that you consistently refer to multiple trailers being drawn by single tractors as "double bottom highway trailers."

You are undoubtedly aware of the fact that the use of multiple trailers in the eleven western states has been general for such a long period of time that the use of such vehicles is considered commonplace and no special significance is attached to the operation. We do not disagree with the articles that you are writing and we certainly support your objectives. However, it is felt by the writer that the terminology that has been applied to such operations, namely "double bottom," is extremely misleading, particularly to your readers in the eleven western states. This statement is made because of the fact that there are actually trailer vehicles in operation here with double bottoms. These are multiple decked vehicles arranged for moving livestock which can, for example, be single decked when handling cattle or multiple decked when handling sheep or hogs. The use of these vehicles has very severely cut into the movement of stock by rail. The truck trailer bodies are as long as the various state highway laws permit. Of course one of the difficulties in handling stock whether it be by rail or by truck, lies in the direction of the fact that the unit is generally a single purpose vehicle which means that after its cargo has been delivered it must return light in order to pick up another load. These livestock truckers are resolving this problem through the application of what might truly be called "double bottoms." They have constructed underneath the flat bed of the trailer a hanging tank structure between axles and just clear of the highway sufficiently to insure that the tank would not foul under normal operating conditions. This permits these carriers to haul livestock in one direction and obtain return loads with various liquid products which can be handled successfully in bulk in tanks.

To those of us who live in western territory and are accustomed to the use of multiple trailers, this combination type of vehicle referred to above is what is truly considered to be a "double bottom" type of trailer. This commentary is presented to you only with the thought that your continued use of the term "double bottom" in all probability only registers in the minds of western readers as a crusade against vehicles capable of carrying both liquids and livestock as opposed to the points you are attempting to score against the common usage of dual trailer units behind a single tractor.

J. F. Kirkland
Manager West Coast Region
Baldwin-Lima-Hamilton Corp.

(To avoid confusion, Railway Age in the future will avoid the use of the term "double bottoms" when referring to multiple trailer rigs—or, as they are becoming popularly known, "turnpike trains."—Editor.)

NP-GN Merger

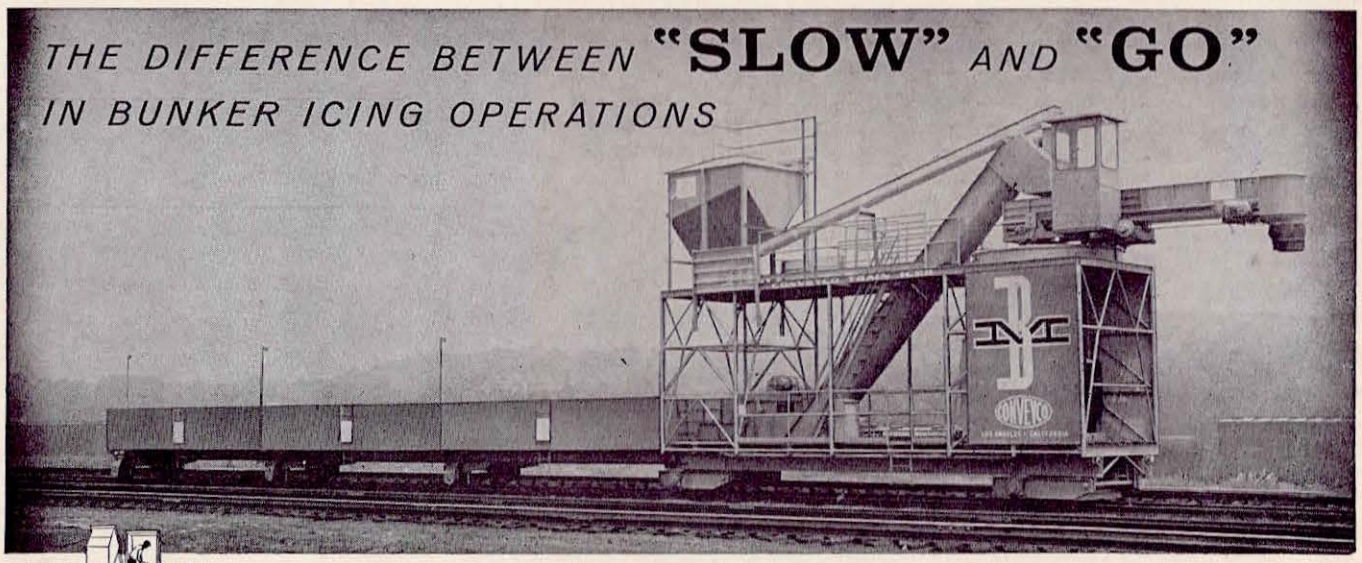
St. Paul, Minn.

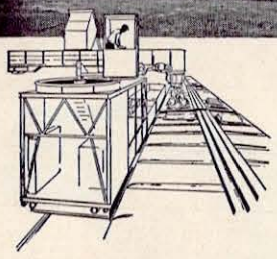
To the Editor:

It strikes me that Railway Age did an exceptionally fine job in reporting the NP-GN unification agreement . . . Congratulations to the people who handled the assignment.

L. L. Perrin, Manager
Advertising and Publicity Department
Northern Pacific

THE DIFFERENCE BETWEEN "SLOW" AND "GO"
IN BUNKER ICING OPERATIONS





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ENGINEERS and MANUFACTURERS

New MP Line to Tap Ozark Ore

► The Story at a Glance: Across the rugged countryside in southeast Missouri the Missouri Pacific is building a 28-mile single-track line to reach an iron-ore deposit estimated to contain 100 million tons of ore. The pelletized ore is expected to produce about 100 cars of traffic per day. Line is mostly of conventional construction except that the subgrade is trenched and backfilled with select pervious material. Purpose: To build in, under controlled conditions, a feature that is considered certain to develop eventually anyway.

The construction of new railroad lines to tap ore deposits isn't confined to Labrador and other far-off places. Right here in the United States a 28-mile line is being constructed to serve an iron mine in a location not generally noted for iron ore resources.

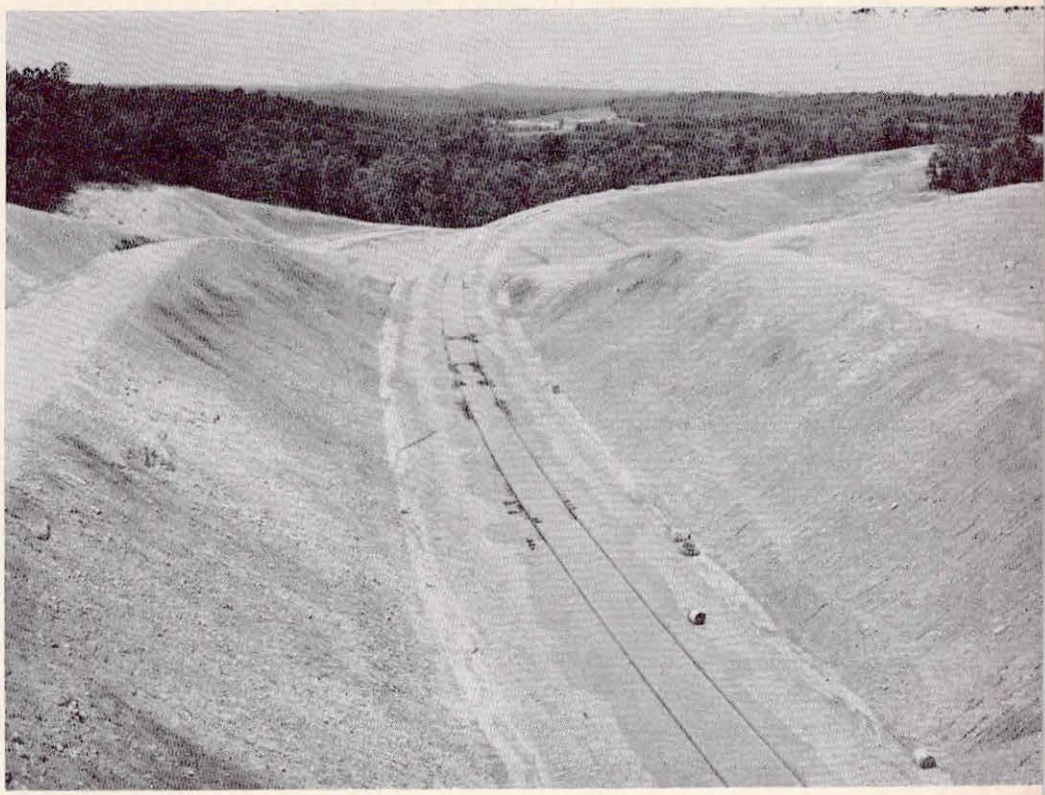
This line is being built by the Missouri Pacific in southeast Missouri about 70 miles south of St. Louis. Costing about $4 million, it will serve the $40-million Pea Ridge iron mine being developed by the Meramec Mining Company, a joint enterprise of the Bethlehem Steel Company and the St. Joseph Lead Company. According to the railroad, the iron ore deposits in this region contain an estimated 100 million tons, with tests indicating that the ore is from 55% to 65% pure.

The new mine is expected to produce about 2 million tons of ore annually, which will be processed into pellets at the mine site. Estimates are that traffic from this development will approximate 100 cars of pellets a day. The cars will move over the new line to a connection with the MP's main line at Cadet, Mo. Thence, they will move northward to a point, as yet undetermined, for shipment, probably by river barge, to eastern steel mills.

About midway of the length of the new line, a spur track extends 1.72 miles to the south to serve the $6 million Indian Creek works of St. Joseph Lead. The spur will eliminate trucking of lead concentrate to Potosi, Mo., south of Cadet, where it is now loaded on freight cars.

Grading and construction of drainage structures were carried out by two contractors, each working on about half of the new line. Common excavation, including that obtained from borrow pits as well as from cuts, totalled about 1,377,000 cu yd. In addition, about 178,000 cu yd of rock was removed from cuts.

Eighteen bridges and trestles were required, including two highway grade-separation structures. The 16 trestles, ranging in length up to 470 ft and in height from 8 ft to 25 ft, are all concrete ballast-deck structures. They were built of precast piles and deck slabs manufactured in the railroad's concrete products yard at North Little Rock, Ark. Components were delivered by rail to Potosi, closest point to the construction site, then hauled by truck over county highways and dirt roads to installation points. The precast half slabs, weighing about 26 tons each, were brought in on flatbed trucks, one at a time.



HEAVY GRADING was necessitated by terrain of Missouri Ozark foothills. This view shows section of new line after ballast was distributed but before track was raised.

The smaller waterway openings consist of Armco metal culverts ranging in diameter from 18 in. to 156 in. Culverts with diameters of 78 in. or more are of the Multi-Plate type and were assembled at the site.

The fact that the line is in the foothills of the Missouri Ozarks dictated acceptance of some track curvature that would have been considered excessive for high-speed main-line track, but the maximum of 6 deg is found on only one curve. Maximum grade against empty-car movements is 2% compensated for curvature, while that against loaded movements is 1.5%.

With one important exception, the roadbed standards in general follow conventional practice. The exception was the trenching of the roadbed and the backfilling of the trench with a select pervious material consisting of sand and crushed gravel. The trench is 10 ft wide and was excavated to a depth of 1 ft. Material removed was used to build up the shoulders to final subgrade. This had the effect of increasing the depth of the trench to about 18 in.

At intervals of 100 to 150 ft, French drains were cut through the shoulder of the roadbed on a staggered arrangement. These are about 12 in. wide and are cut down to the level of the bottom of the trench.

What purpose is served by the trenching of the subgrade? A spokesman for the road explains it this way: In almost any roadbed ballast is eventually forced down into the subgrade under the track section. Water pockets and soft spots frequently result. By providing the built-in trench the railroad is, therefore, anticipating the

(Continued on following page)

NEW MP LINE TO TAP OZARK ORE *(Continued from preceding page)*

inevitable. In so doing it avoids the expense normally involved when the condition develops, and also precludes the usual problems by providing adequate drainage.

The trenching is not carried out in cuts excavated in solid rock. At these locations, the practice was to "shoot" the rock to a depth of about 12 in. below subgrade to break up the rock to provide a flexible cushion for the track.

The track consists of 112-lb relay rail, creosoted wood crossties, and chat ballast placed over the sub-ballast in the trench. In preparation for constructing the track, the ties, rails and fastenings were distributed from trucks moving over the graded roadbed. Flat-bed trucks were used for the ties and fastenings, but low-boy trailers were required for the rails. Each trailer load was made up of 27 rails which were unloaded by barring them off to the side. Unloading of the ties followed.

Advance distribution of all the materials, including the rail, permitted the rail to be laid by conventional methods and equipment. This work was done by a gang of 80 MoPac track workers.

Grading for the new line was completed June 15, track-laying on July 15. It is expected the line will be entirely completed by January 1, 1961, in time to start hauling to the mine site the heavy machinery required for processing the ore.

Railroading After Hours with Jim Lyne

NOW IT'S GUNS—They tell me the juvenile delinquents (I've heard another name for them), whose standard practice is to throw rocks at trains, have now taken also to gunfire.

I heard the other day of three 15-year-old kids who were apprehended in the act of shooting at trains with a small-caliber rifle. Brought into court, the boys were told please to behave better hereafter. The magistrate did, however, confiscate their guns.

RECALLS 'SODA ASH'—W. A. Vaughn, CGW's sales manager at Houston, recalls a talk he had with "Soda Ash Johnny" Horan back in the late thirties, on Johnny's 99th birthday. He says he has a photo, made on the occasion, with the Hiawatha 4-4-2 engine No. 1 serving as the background.

Mr. Vaughn is a traffic salesman who, quite obviously, has deep interest in the industry he serves. (This, to my mind, is the first test of a real railroader.)

TRAINMAN IS PROMOTED—Robert Williams, CNR brakeman and conductor from Kamsack, Sask., has inherited a baronet's title and is now "lord of the manor" of a 2,000-acre estate in southwestern England. Sir Robert, as he is now properly addressed, was born at Winkler, Man., 36 years ago and entered train service in 1944. He has been a part-time conductor and has also served as a relief yardmaster—pretty interesting work to be giving up, but railroaders seldom turn down a promotion.

RR SAFETY IN RUSSIA—One of the railroaders who recently returned from Russia was particularly impressed with the unsafe practices he observed on the railroads there—such as poor passenger protective devices in vestibule connections, passengers riding on tops of coaches (even in electrified territory) and lack of use of goggles in shops. Russian concern for safety seems to be aimed mainly at preventing the kind of train accidents which might tie up the railroad. Avoiding casualties to individuals gets much less attention.

Sounds strange, because socialists are always telling us that it is socialism, not capitalism, that cares about the welfare of people—that all capitalists care about is property.

Some of these United Nations outfits, that are always looking around for something to do, might try their hand at setting up international standards for reporting industrial and transportation casualties. A little international competition in the area of safety mightn't be a bad idea

DIAGNOSTICIAN—Professor Jim Nelson of Washington State University—the economist who wrote the Brookings Institution book, "Railroad Transportation and Public Policy"—called me on the phone from an overseas airport the other day. He was just taking off for Nigeria to look over the transportation set-up in that country for Stanford Research.

Practically every country in the world—highly developed or otherwise—faces the problem of how to divide its transportation activities economically among the several varieties. For the railroads to get due consideration in such a division, they need to be freed of encumbrances which were laid on them, fairly enough, when they had a monopoly. Jim Nelson has established himself as an expert in analyzing such problems, from the standpoint of the public interest.

SCRIBE'S PAYOLA—I had something to say here about the high quality of Rock Ford cantaloupes and Abilene, Kansas, watermelons—and, to prove that Pecos, Tex., does at least as well in the melon line, the T&P's Jim Shores sent me a crate of Pecos cantaloupes. I shared the donation with my colleagues—and they join me in praise of the Pecos product. I don't have to say that Rocky Fords aren't perfect to give an A+ mark to the Pecos variety too, which I cheerfully do.

SHIPS FOR DEFENSE—Coastwise ship operators lay great stress on the importance to defense of having a lot of vessels in coastwise service that can be diverted, in case of a military emergency. They also seem now to be making some traffic gains by improved devices for transfer of lading from shore to vessels and vice versa. However, in the Commerce Department pamphlet "Rationale of Federal Transportation Policy" (authors E. W. Williams and D. W. Bluestone), it is suggested that ships with specialized loading devices for commercial use might not be adapted to the job of military service, serving inadequate or non-existent ports.

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IT'S "WORKING FRICTION" . . . the friendly kind that helps cut down lading damage claims and car maintenance costs. You find it in the MARK 40—the amazing HIGH ABSORPTION, LOW REACTION *friction* draft gear. Developed by Cardwell Westinghouse, the MARK 40 has ample capacity to absorb heavy road and switching impacts, with low sill pressure. Fits standard 24⅝-inch pockets . . . has 3¼ inches of travel. These features make the MARK 40 friction gear the answer to today's heavier railroading requirements. No wonder it's the railroaders' best friend!

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'Do-It-Yourself' Costing

A freight traffic officer's do-it-yourself method of calculating costs of specific movements of carload freight was described in our May 30 issue. Thereafter some professional cost people gave him a few suggestions, leading him to make some alterations in his calculations. His revised approach to the problem is presented herewith—Editor.

Every railroad rate officer has to have some idea of the costs of the freight movements he is responsible for pricing—but there are not many railroads that supply this information regularly and systematically to all officers and employees who would find it interesting and helpful.

A "middle bracket" traffic officer tried his hand at working out cost calculations of his own, based on the generally available ICC so-called "Form A" cost statistics.

The ICC costs are compiled and published as regional averages. Our inquisitive traffic officer assumed his own road's costs would not depart too widely from the regional averages. So he got a copy of ICC Cost Statement No. 5-59, and tackled his problem.

He wanted to construct a table (reproduced herewith) which would show carload costs of different weights of shipments in box cars in the Western District. In the first line of the table on p. 71 of Statement 5-59, terminal cost for a box car with a 20,000-lb load is shown to be $61.23 per car, plus 0.333¢ per 100 lb (200 of such units in this case). Doing the necessary arithmetic, he came up with $61.90 for the terminal cost of handling a box car with a 20,000-lb load.

The terminal cost includes this class of expense at both point of origin and destination. On traffic both originating and terminating on one railroad, that railroad would incur all this cost (at both sending and receiving ends). So the figure of $61.90 appears in the accompanying table as the first item in column (a) "Terminal Cost per Car, Local."

If the car originates or terminates on another railroad, our traffic man's railroad will incur only half of this terminal expense, or $30.95. However (see p. 15 of Statement 5-59), it costs an average of $10.68 to interchange a box car between railroads in the Western District. Our inquiring friend's railroad would assume half of this cost (for one interchange), or $5.34. This average figure has to be increased by 36% to allow for the percentage of "empty return" which prevails for box car traffic in the Western District. So the terminal cost of an interline movement—item (b) in the first line of the table—would be $30.95 plus $5.34 plus $1.93, or $38.22.

If the car is an "overhead" move—both originating and terminating on connecting railroads—the terminal expense to the railroad we are considering would add up to twice one-half the cost of two interchanges, or $14.53, which appears as the first item in column (c).

The data on line-haul costs per car-mile, column (d), are found on pp. 71 and 76 in Statement 5-59. On p. 71, cost per car-mile is shown as 13.86544¢. To that must be added (for a 20,000-lb load) 20 times the per cwt.-mile figure of 0.01094¢ (2.188¢), giving a total of 16.05344¢. From this total, the interchange cost of 1.66403¢ (p. 76 of the Statement) must be subtracted, because it has already been included in the figure of 16.05344¢. The result is 14.39¢ ($0.1439), producing the first item under column (d).

Calculations for different weights of lading, to produce the remainder of the table, are made in a similar manner.

The traffic officer who compiled this table has also produced them for each of the seven other types of cars.

With such tables handy, anyone can readily calculate—on a regional average basis—the probable out-of-pocket cost on any movement of freight in his district, provided he knows the type of car, weight of lading, and the route mileage (also whether the movement is local, interline, or overhead).

For example, suppose there is a box car with a 40,000-lb load which moves 400 miles, originating and terminating on one railroad. The cost to the railroad is shown from the table to be $62.56 (the terminal cost) plus 400 times 16.58¢ (the line haul cost), or a total of $128.88. Cost for a 100-mile haul is $79.14, for a 50-mile haul, $70.85.

It is significant to note that—with this weight of lading—the total cost per car-mile for the 400-mile haul works out at 32¢. But at 100 miles the per-car-mile cost is 79¢. At 50 miles the per-car-mile cost is $1.42. All of which signifies that cents-per-car-mile earnings, frequently quoted as a gage of profitability, is a figure completely without significance—unless length of haul is taken into account.

It is worth noting also that the cost of moving 80,000 lb in two cars (40,000 lb in each car) for 100 miles is $158.28. Moving this load in one car, however, would cost only $84.84, a saving of $73.44 or 46%. This suggests the opportunity railroads have to offer mutually profitable discounts to shippers to induce heavier loading of cars.

Our traffic man, equipped with the 8 tables he has prepared, is well on his way to doing business as business in other fields is done—with an eye on the profit margin, and knowledge of what opportunities there may be to shave rates here and there, if necessary to get the business.

Average Out-of-Pocket Costs For a Western District Box Car

Pounds Lading Per Car	Terminal Cost Per Car			Line-Haul Cost Per Car-Mile
	Local (a)	Interline (b)	Overhead (c)	(d)
20,000	$61.90	$38.22	$14.53	$0.1439
24,000	62.03	38.29	14.53	0.1483
30,000	62.23	38.39	14.53	0.1548
36,000	62.43	38.49	14.53	0.1614
40,000	62.56	38.55	14.53	0.1658
45,000	62.73	38.64	14.53	0.1712
50,000	62.90	38.72	14.53	0.1767
60,000	63.23	38.89	14.53	0.1877
70,000	63.56	39.05	14.53	0.1986
80,000	63.89	39.22	14.53	0.2095
90,000	64.23	39.39	14.53	0.2205
100,000	64.56	39.55	14.53	0.2314

Notes:
No circuity has been included in these calculations. Therefore, these costs would be applicable only to car-miles by actual route of movement.
Costs shown are average 1958 Rail Form A "average weight train costs" unadjusted.

MARKET OUTLOOK *at a glance*

Carloadings Drop 3.2% Below Previous Week's

Loadings of revenue freight in the week ended Aug. 6 totaled 594,329 cars, the Association of American Railroads announced on Aug. 11. This was a decrease of 19,907 cars, or 3.2%, compared with the previous week; an increase of 62,070 cars, or 11.7%, compared with the corresponding week last year; and a decrease of 24,875 cars, or 4.0%, compared with the equivalent 1958 week.

Loadings of revenue freight for the week ended July 30 totaled 614,236 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, July 30

District	1960	1959	1958
Eastern	88,746	82,640	93,712
Allegheny	99,030	79,981	103,436
Pocahontas	53,616	46,740	52,670
Southern	105,953	109,627	107,184
Northwestern	102,825	67,755	99,971
Central Western	114,818	110,043	116,309
Southwestern	49,248	48,076	49,396
Total Western Districts	266,891	225,874	265,676
Total All Roads	614,236	544,862	622,678
Commodities:			
Grain and grain products	71,018	56,774	75,956
Livestock	3,315	3,750	3,905
Coal	104,905	98,662	107,964
Coke	5,696	3,445	5,248
Forest Products	39,645	42,251	37,346
Ore	63,255	11,695	55,042
Merchandise l.c.l.	34,121	39,514	44,177
Miscellaneous	292,281	288,771	293,040
July 30	614,236	544,862	622,678
July 23	619,784	536,395	608,065
July 16	607,081	585,073	582,244
July 9	456,330	552,313	491,566
July 2	549,416	574,102	460,345
Cumulative total, 30 weeks	17,987,182	18,487,031	16,596,730

PIGGYBACK CARLOADINGS—U. S. piggyback loadings for the week ended July 30 totaled 11,317 cars, compared with 7,714 for the corresponding 1959 week. Loadings for 1960 up to July 30 totaled 316,063 cars, compared with 233,667 for the corresponding period of 1959.

IN CANADA.—Carloadings for the seven-day period ended July 21 totaled 76,796 cars, compared with 77,463 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Loaded Cars Revenue	Connections Rec'd from Total Cars
Totals for Canada		
July 21, 1960	76,796	23,822
July 21, 1959	83,385	24,232
Cumulative Totals		
July 21, 1960	2,017,596	809,177
July 21, 1959	2,060,840	794,455

New Equipment

FREIGHT-TRAIN CARS

► *North American Car.*—Fourth quarter 1960 car acquisition and construction program will involve expenditure of approximately $4,500,000. Orders will include 100 50-ft 70-ton meat refrigerator cars (50 to be equipped with damage-prevention loading devices) from Pacific Car & Foundry; 150 40-ft 50-ton meat refrigerators from company shops; and 26 70-ton 10,000-gallon sodium chlorate tank cars, also from company shops.

PIGGYBACK

► *Soo Line.*—Ordered five 85-ft piggyback flat cars from Pullman-Standard for delivery within the near future. Cars will be Soo Line's first 85-ft TOFC units.

FREIGHT-TRAIN CARS—SPECIAL

► *July Bad Order Ratio 0.3% Higher Than Last Year.*—Class I roads on July 1 owned 1,673,827 freight cars, 27,878 less than a year ago, according to AAR report summarized below. Bad order ratio was 0.3% higher than on July 1, 1959.

	July 1, 1960	July 1, 1959	Change
Car ownership	1,673,827	1,701,705	—27,878
Waiting repairs	137,924	134,194	3,730
Repair ratio	8.2%	7.9%	0.3%

LOCOMOTIVES

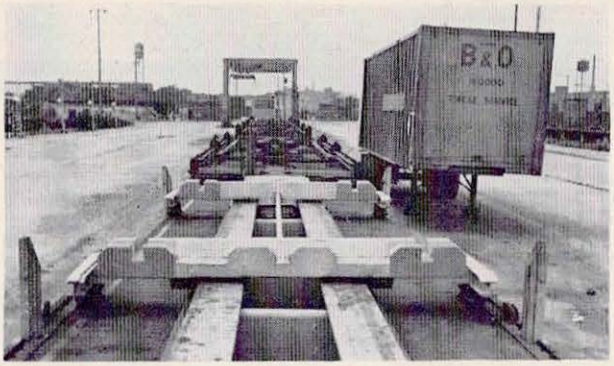
► *Locomotive Ownership and Condition.*—Class I roads owned or leased 28,397 diesel units on July 1, an increase of 365 units over July 1, 1959, according to AAR quarterly summary; steam locomotive ownership was reduced by 598.

	Owned or Leased July 1		Stored Serviceable July 1		Waiting Shops July 1	
	1960	1959	1960	1959	1960	1959
Diesel (Units)	28,397	28,032†	450	231	1,438	1,318
Steam (Locomotives)	404	1,002	176	344	189	449
Electric (Units)	501	550	62	49	40	86
Gas Turbine-Electric	41	33*	—	—	1	—

† Revised
* Formerly included with diesels.

New Facilities

► *Sacramento Northern.*—Highway reconstruction program in Chico, Calif., provides for establishment of new grade lines and elimination of unnecessary track in various city streets. Program requires SN to remove 3,270 track feet of surplus second track and spurs and to reconstruct the remaining 7,780 ft of track with 100-pound relay rail and flangeway liner. SN will completely remove old track structure and provide all new ballast, ties and other track material. Concrete will be placed between the ties and under the rails to insure against structural failure during the life of the newly constructed streets. Project will cost an estimated $355,000, will be completed in August. Work is being done by outside contractors, except for signal work performed by company forces.



General American Adapts G85 Flat for Containers

A G85 piggyback flat car adapted for containers has been successfully impact-tested at General American's Plant No. 1, East Chicago, Ind. Road tests have also been made between St. Louis and Baltimore. Containers ride on bolsters (specially designed to carry Baltimore & Ohio and Missouri Pacific containers) which tie directly into the shock absorber of the G85 hitch. Bolsters, which ride on center sill, are easily removable, conceivably could be stowed on the car when not in use. Connection with shock absorber provides 10-in. travel in either direction. Photo at left shows close-up view of bolsters with B&O container in background. In photo at right, MoPac container rides the bolstered G85. Similarity of mounting devices on MoPac Trailmobile containers and B&O Fruehauf boxes permits interchangeable mounting on same bolsters. Bolsters will fit on any of the 600 G85 flats now in service or on order.

Coal Sampling Device Passes Tests

A new automatic coal sampling device, now under study by a number of railroads, may be placed in operation at lake ports prior to the opening of the 1961 navigation season.

The device has been tested successfully at Chesapeake & Ohio and Baltimore & Ohio piers at Toledo, Ohio, according to A. K. Greene, vice president of Oglebay Norton Company of Cleveland and chairman of a special committee of coal producers, shippers and users who have been working on the project.

A second committee, composed of railroads which operate coal dumpers at lower lake ports in Ohio, is now working over capital and operating costs of installing the sampling equipment. Rail representatives are scheduled to report to Mr. Greene's committee next month on the economic feasibility of the device and the outlook for installations before the '61 shipping season opens.

The equipment is designed to secure automatically coal samples from rail cars as the coal is loaded aboard ship. Three steel tubes are mounted on the cradle of the dumping machine. As coal is loaded, samples are collected in openings in the tubes and removed for laboratory analysis. Most recent tests, it's reported, show a high degree of agreement between test samples taken at mine tipple and those taken from cars by the new device.

Conventional sampling done now is a scoop-by-hand operation which, according to the National Coal Association, "has often resulted in a coal analysis that is not representative of the real quality of coal in the car."

Installation of automatic sampling devices at lake ports, Mr. Greene commented, "will mark a tremendous stride forward in the marketing of coal. Ultimately, this same device can be adapted to dumpers at tidewater ports with substantial benefits to those who buy and sell American coal overseas."

The original design of the device was prepared by Armand Bur, mechanical engineer with Cleveland Electric Illuminating Company. Engineering and construction work in the test program was done by Fairchild Engineering Company, of Marion, Ohio.

Infra-red Rays To Thaw Ore

An iron ore thawing facility utilizing infra-red rays as a heat source is being constructed by the Chicago & North Western at Escanaba, Mich. Construction of a 276-foot metal building to house the infra-red heating elements will be completed this fall. The tunnel-like building will accommodate ten 70-ton ore cars at a time.

Radcor, Inc., of Bradner, Ohio, will install the infra-red equipment in the $250,000 facility, said to be one of the largest of its kind designed for thawing ore moving under freezing temperatures. Iron ore cars moving into the building will absorb heat radiated from infra-red elements located under, above and on both sides of the cars.

C. J. Fitzpatrick, C&NW president, said "this new method of thawing iron ore will replace our conventional steam thawing facilities maintained in the area for many years. The infra-red principle of thawing will result in more efficient and accelerated movement of iron ore and will permit an extension of the ore shipping season by keeping ore moving until ice on the lakes stops water transportation."

A reduced rate for ore originating in the Gogebic range for movement to Escanaba was put into effect by North Western at the beginning of the 1960 shipping season. Mr. Fitzpatrick says this was one factor contributing to a record movement of ore over the Escanaba dock so far this season.

A proposed alternate dockage charge is pending before the ICC, allowing a reduction in charges for shippers who make no request for such services as storage, mixing or blending of ore at Escanaba.

Also under consideration by North Western are new mechanized dock facilities designed for handling pelletized as well as conventional ore by conveyors.

ATOMIC 'ASH' CONTAINER

(*Continued from page 14*)

decay heat by conduction through the walls of the container.

The emergency system works in this way: if the secondary system breaks down and can no longer cool the primary system, the primary water temperature will increase until the primary safety valve opens and relieves the primary system. Since the steam leaving the primary vessel might be radioactively contaminated, it is vented through condensers to lead-clad hold tanks adjacent to the container.

After the primary water boils off, dangerous fuel meltdown or disintegration of the fuel matter being carried is prevented by the metallurgical characteristics of the aluminum spent fuel holders in which the spent fuel is being carried. As the spent fuel starts to heat, the aluminum holders expand. Due to their high coefficient of thermal expansion, they touch the container wall and form a conduction path between the spent fuel and the container wall. The heat will then flow through the container wall to the outside of the container, where it is dissipated to the atmosphere by vertical fins welded on the container.

This emergency system prevents the escape of fission products to the atmosphere even though all coolant is lost.

In addition to being thermally hot, the fuel being shipped is radioactively hot. This requires a large amount of lead shielding (or equivalent) to protect operating personnel from radiation. The radiation dose rates from the container are well within current requirements for Class D radioactive cargo. To attain that, however, calculations show that container walls 11.5 in. thick will be required to bring the dose rates down to this level. Also, since radiation may escape through pipe openings, all the coolant exit and entrance piping will be shielded. Provision for this shielding accounts for a large proportion of the container's weight.

Rail cars are currently available that will be able to accommodate the container. It is possible that additional, specially designed cars will have to be provided as the need increases.

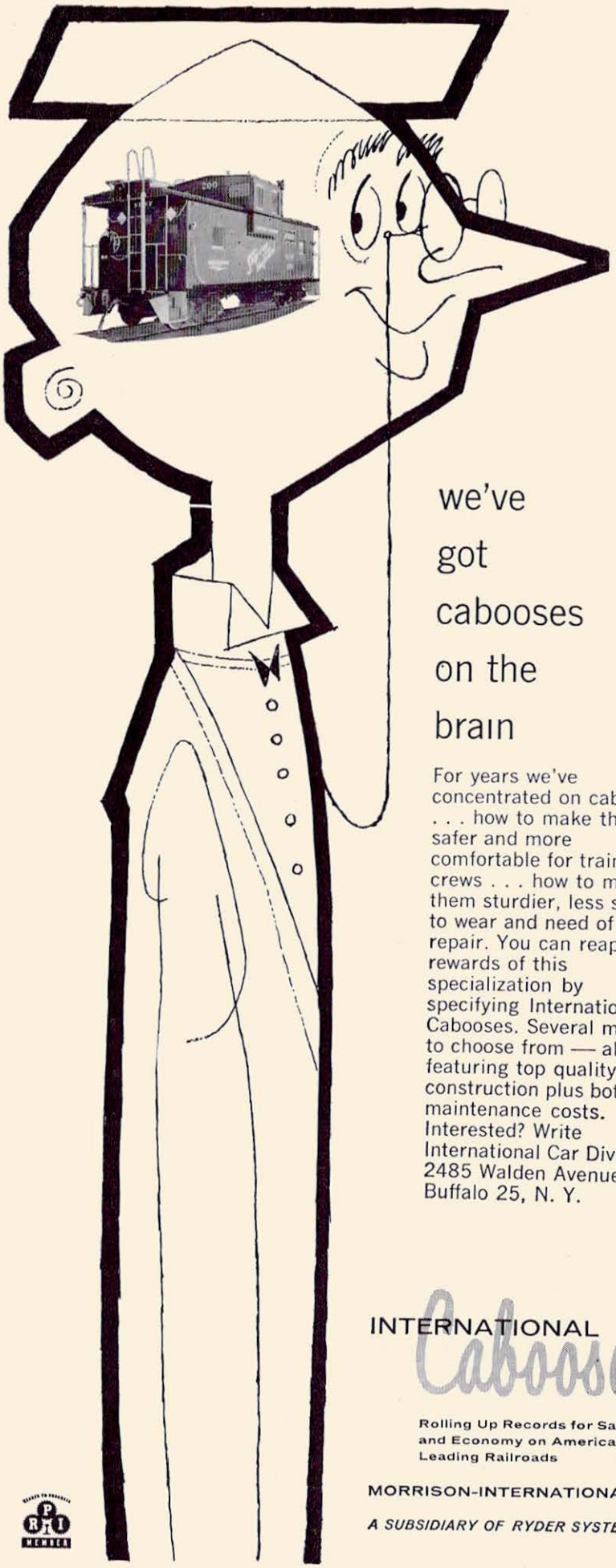
Dividends Declared

BOSTON & ALBANY.—$2, payable Sept. 30 to holders of record Sept. 16.

CHICAGO, BURLINGTON & QUINCY.—$2, payable Sept. 22 to holders of record Sept. 6.

COLORADO & SOUTHERN.—4% non-cumulative 1st preferred, $2, payable Sept. 23 to holders of record Sept. 1.

DENVER & RIO GRANDE WESTERN.—25¢, quarterly, payable Sept. 19 to holders of record Sept. 2.



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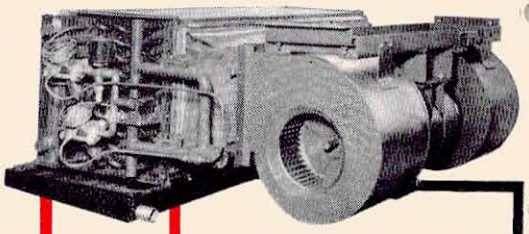

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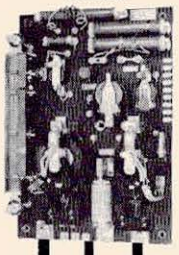

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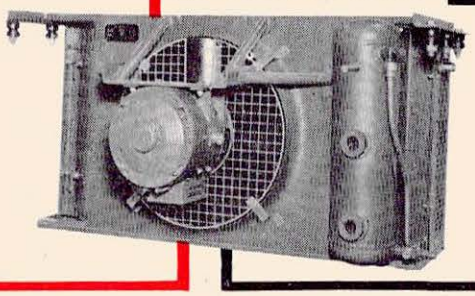

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People in the News

ATLANTIC COAST LINE.—J. W. Plant, general superintendent special studies, Jacksonville, Fla., appointed manager, trailer-train service there. **D. A. Boyette,** assistant general freight agent, Wilmington, N.C., named general freight agent, trailer-train service, Jacksonville. **E. W. Thomas** appointed assistant general freight agent, trailer-train service, Jacksonville.

W. D. Quarles, Jr., superintendent motive power, Rocky Mount, N.C., appointed director of labor relations, Jacksonville.

John W. Weldon promoted to general attorney. **Leonard G. Anderson** promoted to general attorney and assistant secretary of the company. **Roderick M. Nicol** appointed assistant general attorney.

BALTIMORE & OHIO.—E. B. Saltmer, traveling passenger agent, Philadelphia, appointed district passenger representative there, succeeding **L. L. Drumheiser,** named assistant to general freight agent, Baltimore.

BURLINGTON.—Albert M. Rung, special representative, Casper, Wyo., appointed director of public relations, Chicago.

Dr. H. W. Hammatt, assistant chief medical officer, named chief medical officer and medical director of the company's relief department, Chicago, to succeed **Dr. R. B. Kepner,** who retired July 31.

D. V. Owens, commercial agent, Detroit, appointed division freight agent, Lincoln, Neb., succeeding **A. C. Bintz,** who retired July 31. **J. P. Cassels,** traveling freight and passenger agent, Great Falls, Mont., appointed division freight agent, St. Joseph, Mo., to succeed the late **M. B. Williams.**

CANADIAN NATIONAL-GRAND TRUNK.—Rodney H. Reilly, general agent, Memphis, Tenn., appointed assistant general freight agent, Milwaukee, Wis., to succeed **Henry W. Hanes,** retired.

CANADIAN PACIFIC.—Effective July 1, the Department of Immigration and Agricultural Development was reorganized on a regional basis. **W. W. Webb,** assistant manager, Winnipeg, will administer the Prairie region. **A. W. McArton** appointed assistant manager, Eastern region, Toronto. **H. P. McMillan** appointed regional superintendent, Atlantic region, Montreal. **C. F. Cornwall** named regional superintendent, Pacific region, Vancouver, B.C.

Frank L. McCloskey, general agent, CP Steamships, New York, promoted to New York general agent in charge of all passenger services. Mr. McCloskey's promotion is a direct result of the retirement of **James E. Roach,** general agent, rail passenger department.

CHESAPEAKE & OHIO.—Carl B. Weber, assistant to general coal traffic manager, Cleveland, appointed special assistant, office of vice president—coal traffic and development. **Francis W. Cleary,** chief clerk, succeeds Mr. Weber.

J. H. Metzger appointed assistant to chief engineer, Richmond, Va., succeeding **F. A. Mezger,** retired.

C. A. Kraft appointed general foreman, Charlottesville, Va., succeeding **J. C. Laramore,** retired.

Charles C. Hoover, commercial agent, Miami, Fla., appointed general agent, Beckley, W.Va., succeeding **P. T. Davis,** who retired July 31.

CHICAGO & EASTERN ILLINOIS.—Ira C. Holmes appointed freight sales manager, Portland, Ore.

CHICAGO & NORTH WESTERN.—S. J. Owens appointed assistant chief engineer—staff, and **L. J. Deno** named staff engineer—maintenance, both at Chicago.

DENVER & RIO GRANDE WESTERN.—T. L. Rudmann appointed district freight and passenger agent, Wichita, Kan., succeeding **J. L. Wells,** named general agent, Grand Junction, Colo., replacing the late **W. J. Moore. J. J. Martin** appointed district freight and passenger agent, Pueblo, Colo., succeeding **W. H. Moore,** named district freight agent, Los Angeles, Cal., replacing **R. E. Port.** Mr. Port appointed district freight and passenger agent, Sacramento, Cal., succeeding **A. F. Holman,** named general agent, Reno, replacing **Cecil Pearson,** appointed assistant general agent, Boise, Idaho.

DETROIT, TOLEDO & IRONTON.—Harry D. Berry appointed to the newly created position of assistant general freight agent piggyback sales, Dearborn, Mich.

DULUTH, SOUTH SHORE & ATLANTIC.—H. F. Schumacher appointed freight claim agent, Minneapolis, Minn., succeeding **A. E. Larson,** retired.

ELGIN, JOLIET & EASTERN.—J. W. Hartshorne appointed assistant to general superintendent, Joliet, Ill.

GREAT NORTHERN.—Paul C. Ivory, city freight agent, Detroit, advanced to general agent, Eugene, Ore., to succeed **Ralph S. Roper,** who retired Aug. 1.

Elton L. Conaway, trainmaster, Grand Forks, N.D., transferred to Minot, N.D., succeeding **R. E. Strom,** who retired Aug. 1. **Ronald L. Aase,** assistant trainmaster, Minot, replaces Mr. Conaway.

INTERSTATE COMMERCE COMMISSION—Homer H. Kirby, hearing examiner, who had been with the ICC since 1916, retired July 31.

MILWAUKEE.—John L. Gable appointed to the newly created position of operations research analyst, Chicago. He was formerly senior systems analyst, Collins Radio Co., Cedar Rapids, Iowa.

MISSISSIPPI CENTRAL.—W. T. Cosby, assistant auditor, Hattiesburg, Miss., appointed auditor, succeeding **F. E. Montgomery,** who relinquished that position July 31 but continues as general manager.

MISSOURI-KANSAS-TEXAS.—Ray F. O'Neill, Jr. appointed sales manager, San Antonio, Tex.

MISSOURI PACIFIC.—J. M. Mayer appointed electronics engineer, St. Louis, to succeed **H. R. Duckworth,** named communications engineer there. **L. G. Clem, Jr.** appointed telephone and telegraph engineer, St. Louis.

MONONGAHELA.—E. F. Schaefer, purchasing agent, Pittsburgh, Pa., appointed manager of purchases and stores, McKees Rocks, Pa. Positions of purchasing agent and general storekeeper abolished.

NORFOLK & WESTERN.—Guy H. Gilmer, Jr., superintendent of agencies, promoted to the new position of superintendent of wages and working conditions. **R. W. Hundley,** superintendent, New River division, Princeton, W.Va., succeeds Mr. Gilmer. **H. L. Scott, Jr.,** superintendent, Norfolk division, succeeds Mr. Hundley. **C. G. Hammond, Jr.,** superintendent Roanoke terminals, appointed superintendent, Radford division, succeeding **C. H. Hale,** transferred to the Norfolk division. **F. P. Pelter, Jr.,** trainmaster, Shenandoah division, transferred to the Scioto division, succeeding **W. C. Stevens,** promoted to superintendent, Roanoke terminals. **L. M. Newton,** assistant trainmaster, Scioto division, succeeds Mr. Pelter as trainmaster of the Shenandoah division.

NORTHERN PACIFIC.—J. L. Goss, system supervisor of power and heating plants, Missoula, Mont., appointed engineer of water service, power and heating plants, St. Paul, succeeding **H. M. Schudlich,** who retired Aug. 1. **E. M. Walters,** assistant engineer of water service, St. Paul, named assistant engineer of water service, power and heating plants, St. Paul.

PEORIA & PEKIN UNION.—C. P. Grauer, transportation inspector, named general agent, Peoria, Ill., to succeed **L. R. Barnewolt,** who retired July 31.

SANTA FE.—A. J. Schaab, assistant general freight agent, Chicago, promoted to general foreign freight agent there, succeeding **George J. Steinmiller,** who retired July 31. **Fred W. Reitze,** assistant director-traffic of the cost analysis and research bureau, Chicago, replaces Mr. Schaab.

SEABOARD.—L. W. Fincher, assistant freight traffic manager, Atlanta, Ga., retires Aug. 31.

TERMINAL RAILROAD ASSN. OF ST. LOUIS.—H. N. Lee named acting treasurer and paymaster, replacing the late **A. J. Van Hee.**

WESTERN MARYLAND.—F. H. Ansel appointed superintendent of stores, Hagerstown, Md., succeeding **John Byer,** who retired Aug. 1.

Supply Trade

C & S Products Co., Windsor Locks, Conn., has appointed **Railroad Accessories Corp.** as an authorized exclusive distributor for Semper-Seal, a new epoxy-type resin cable splice and blocking compound.

Richard A. Villacres has been named sales manager in charge of Cherry Lockbolts for railroad operations and shipbuilding, Cherry Rivet Division of **Townsend Co.,** Santa Ana, Calif.

OBITUARY

S. M. Harrison, vice president, **Rail Joint Reforming Co.,** and district sales manager, **Rail Joint Co.,** Divisions of **Poor & Co.,** located in Birmingham, Ala., died July 29.

Ross S. Marshall, 86, who retired in 1949 as senior vice president of the **Chesapeake & Ohio,** died Aug. 1 of a heart ailment in St. Luke's Hospital, Cleveland.

Lucian C. Sprague, 78, former president and chairman, **Minneapolis & St. Louis,** died Aug. 3.

James S. Watson, 61, coal traffic manager, **Jersey Central Lines,** New York, died July 31.

You Ought To Know...

First of 66 new 4,400-hp electric locomotives will go into fast freight service on the Pennsylvania in October. Delivery will continue at the rate of two a month beginning in November. A total of 90 electrics will be retired as the new units go into service. PRR is acquiring the locomotives from General Electric under a long-term lease arrangement (RA, Sept. 28, 1959, p. 51).

CNR began dry runs "over the hump" at its new $15,000,000 freight yard in Moncton, N. S., last week. Now 80% complete, the yard is scheduled to be officially opened Oct. 4.

Laurence F. Whittemore, 66, for many years assistant to president of the Boston & Maine and briefly president of the New Haven, died Aug. 10 at Concord (N.H.) Hospital, after a long illness. In his early years, Mr. Whittemore was in the lumber business and finished his career as head of one of the country's largest wood-pulp producers—an untiring advocate of sound transportation and economic development in his native New England.

A $50,000 hotbox detector installation has been made on the Erie's eastbound track at River Jct., 64 miles east of Buffalo, N.Y. The counter in the dispatcher's office (at Buffalo), along with the recorder, will show the exact location of up to four hotboxes on each side of a train. When the detector "picks up" a hotbox, a signal 2.5 miles ahead of the train is set to "approach" and a second signal 5 miles ahead indicates "stop." An electric sign tells the train crew the stop was necessary because a hotbox has been detected. The crew calls the dispatcher, who reads the counter and tells them the exact location of the hotbox.

With operating revenues totaling almost $130 million last year, Chicago Transit Authority met all its fixed charges, wiped out a $600,631 deficit in depreciation reserve deposits carried over from 1958 and had almost $265,000 available for advance retirement of bonds. Patronage of rapid transit lines increased 5.85% over 1958 levels, while patronage of surface (bus) routes gained 1.5%.

A strike of about 300 railroad trainmen idled some 12,000 steel workers in Jones & Laughlin's Pittsburgh plant last week. The trainmen, employees of the Monongahela Connecting, handle in-plant rail movements. Cause of the strike was varying interpretation, by railroad and union, of the basic steel wage contract signed last January and subsequently offered to the trainmen by the railroad.

A fare increase averaging 6.4% or about five cents a ride, will go into effect on the Long Island Aug. 24, subject to New York Public Service Commission approval. The increase, estimated to produce approximately $3,677,400 a year, is designed to put the LIRR back on a break-even basis by offsetting higher wages to employees and other increases in operating costs.

Stephen D. Bechtel, Sr., chairman of the board and president of the Bechtel Corp., San Francisco, will be given the National Defense Transportation Association's 11th annual National Transportation Award when NDTA meets in New Orleans early in October. The award will go to Mr. Bechtel for his "40 productive years in strengthening transportation facilities through engineering and construction."

A five-week course, Executive Planning in Transportation, will begin Oct. 16 at the Transportation Center at Northwestern University. The in-service course is designed to aid in on-the-job application of advanced research and theory in transportation.

Fully-automated subway system is scheduled to be in operation in Hamburg, Germany, by the end of 1962, according to press reports.

New director of the New York Office of Transportation is Arne C. Wiprud, Washington consultant and attorney for four railroads. He succeeds Lewis K. Sillcox, who quit the $20,000 - a - year job, reportedly after a dispute with Gov. Nelson Rockefeller over whether the position should carry cabinet status (RA, Apr. 4, p. 44).

Electro-Motive Division has added a 10,000-kilowatt unit to its line of diesel peaking and reserve power plants. Introduction of the new model gives EMD a line of power units (all using the GM 567D turbo-charged engine as prime mover) ranging from 2,000- to 10,000-kilowatt size.

Rail freight traffic capacity as of June 1 was estimated at 1,737 million tons a year, only slightly above the 1,528 million tons handled in 1956, Dr. Burton N. Behling, AAR economist, told the National Academy of Sciences. The figures were incorrectly reported in the Aug. 8 issue of this magazine (p. 32).

Great Northern takes advantage of its CTC code line to handle signal controls, maintainers' talking circuits, telegraph carrier and high-frequency voice carrier. The latter will ultimately handle direct distance dialing phone service. While most roads use the CTC code line for signal control and possibly for signal maintainers' talking circuits, GN transposes the pair for 150 kc so it can handle high-frequency carrier systems.

Elizabeth O. Cullen, librarian of the Association of American Railroads and thus head of the "world's largest transportation library," will retire Aug. 31 after 43 years with the association. She will be succeeded by Harry L. Eddy, now reference librarian, who has been on the library staff since 1940.

St. Paul Union Depot has a new public address system which features cabinets with 8 small loudspeakers mounted vertically, producing columns of sound that spread out at head-height with a minimum of reverberations off the marble floor and ceiling in the concourse and main lobby areas.

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TORONTO TRANSIT COMMISSION TENDERS FOR SIGNAL CONTRACT SGI BLOOR-DANFORTH-UNIVERSITY SUBWAY

Sealed tenders endorsed "Signal Contract SGI Bloor-Danforth-University Subway" and addressed to the Toronto Transit Commission, General Secretary's Office, will be received by the Commission at its office, 1900 Yonge Street, Toronto 7, Ontario, Canada, until four (4) p.m. Eastern Daylight Saving Time (three (3) p.m. Eastern Standard Time) on Monday, October 17th, 1960.

The work for which tenders are invited consists of providing and installing block signal and interlocking equipment for approximately 12,000 feet of subway as specified in the contract documents and shown on the contract plans. All tenders must be on the Commission's form of tender and must be accompanied by cash or a certified cheque in the amount noted in the Tender and Contract Requirements.

The successful tenderer will be required to furnish, execute and deliver to the Commission a performance bond satisfactory to the Commission in the amount and within the time set out in the contract documents.

The contract documents, including plans and specifications, will be available at the Commission's Subway Construction Branch, 1138 Bathurst Street, Toronto, on and after Tuesday, August 2nd, 1960. Copies of the contract documents may be obtained by depositing one hundred dollars ($100.00) with the Commission for each set of documents. The amount of the deposit will be refunded on the return of the plans and specifications in good condition within thirty (30) calendar days after the opening of the tenders.

The Commission reserves the right to reject any or all tenders.

No tender may be withdrawn after the scheduled closing time for receipt of tenders for forty-five (45) calendar days.

H. E. PETTETT
General Secretary

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Switching Costs Too Much

The average cost of originating and terminating a shipment of freight in a box car—without including any of the expense of the line haul—will range, probably, between $40 and $80. Such costs are just averages. The actual costs of specific movements will cover a still wider range, depending on local conditions—and on whether a shipment consists of a single carload or multiple cars.

In any event, the cost of originating and terminating traffic is far too high. As was pointed out on this page in our July 4 issue, average boxcar terminal cost (origin and destination) rose 72% from 1950 to 1958, while the line-haul cost per 100 miles increased only 31%. Railroads could, perhaps, support the inflation they have suffered in line-haul costs, but the increase in terminal costs is just plain murder. These costs must be brought down—but how?

The largest item in terminal cost—usually 50% or more of the total—is switching cost. And this is a cost that *can* be brought down. One sure way to bring it down would be to reduce the number of employees in a switching crew to the number actually needed. Such reduction must come, but it is not attainable by management's unilateral action—and it will take time to accomplish. But reduction in switching costs is also possible by increasing the efficiency of existing switching operations.

One railroad, which is particularly attentive to the establishment and maintenance of performance standards, has shown us the following comparison of the work done by an efficient hump crew and an inefficient one:

Cars Switched	Crew A	Crew B	Job Cost Crew A	Job Cost Crew B
50	60 min.	120 min.	$25.78	$ 51.56
45	49 min.	105 min.	21.07	45.12
40	57 min.	84 min.	24.51	38.15
45	50 min.	90 min.	21.50	38.67
			$92.86	$173.50
Average Cost per Car			52¢	96¢

Work done by Crew B cost the employing railroad 85% more per car than that of Crew A, which really knew its business. These were hump crews, but similar variations in efficiency between crews must certainly obtain in industrial switching as well. Says the president of this railroad:

"The most difficult problem we have is to sell our men on the importance to them and their jobs of producing low-cost transportation. If we can do this, and there develops among the men a real will to work, there is no question but what our yard switching efficiency can be improved from 25% to 50%."

If switching efficiency could be improved 50%, then total terminal cost (of which switching is half or more) would be reduced 25%; and railroads could afford to make a bid for a lot of traffic that, now, they cannot afford to compete for.

It isn't just a question of saving money—as important as that is. It is also a question of keeping railroads in business. Railroad unit costs must be held down, and brought down, because such costs are the "floor" below which railroad rates cannot go in competing for traffic. Railroads today do not have a single carload of traffic that is "captive"—in the sense that it *has* to move by rail, regardless of how high railroad costs go. The more the railroads can keep costs down, the more traffic they will have—and, as a consequence, the more jobs there will be for railroaders.

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There are other ways, too, of reducing switching costs. One of them is by inducing heavier loading of cars. This action will not reduce the unit switching cost per car, but it will reduce the switching cost per 100 lb of lading. Another comparable method of reducing costs (i.e., by having fewer cars to switch) is by favoring piggyback Plans 3, 4 or 5—which substitute truck movement in terminals for industrial switching.

There are still other means by which total switching costs can be reduced (e.g., offering inducements to shippers to make multiple-car shipments, where they are not doing so already).

It should help to make the facts about present high terminal costs—switching costs especially—more generally known among railroad men. Switching crews, in particular, should be kept informed as to these costs. They are entitled to know how excessive expense in this area is putting a premium on the discovery and application of substitutes for switching movements. Somehow or other these terminal costs have got to be reduced. Railroads' great economy in line-haul expense is being offset to a dangerous degree by the excessive increase in unit terminal costs.

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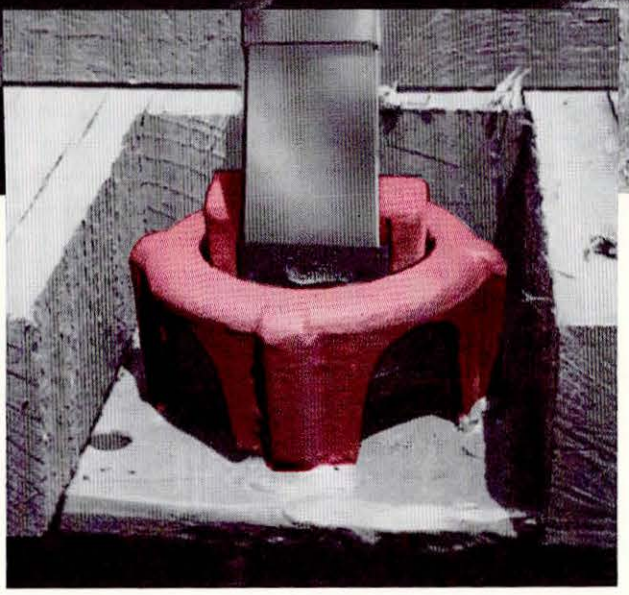

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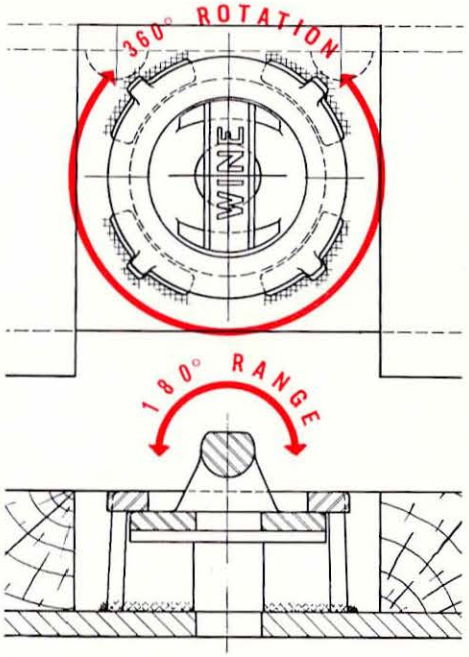

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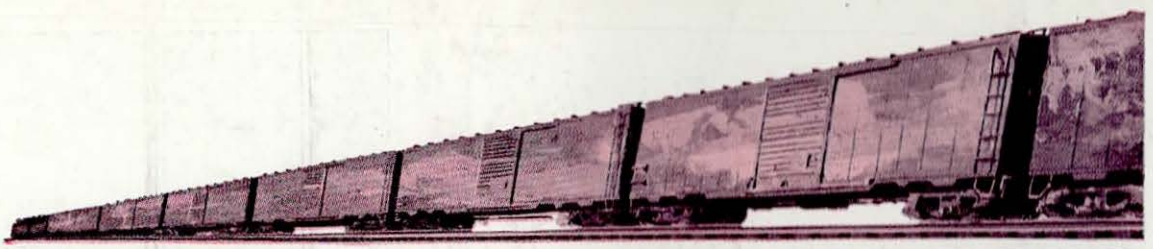

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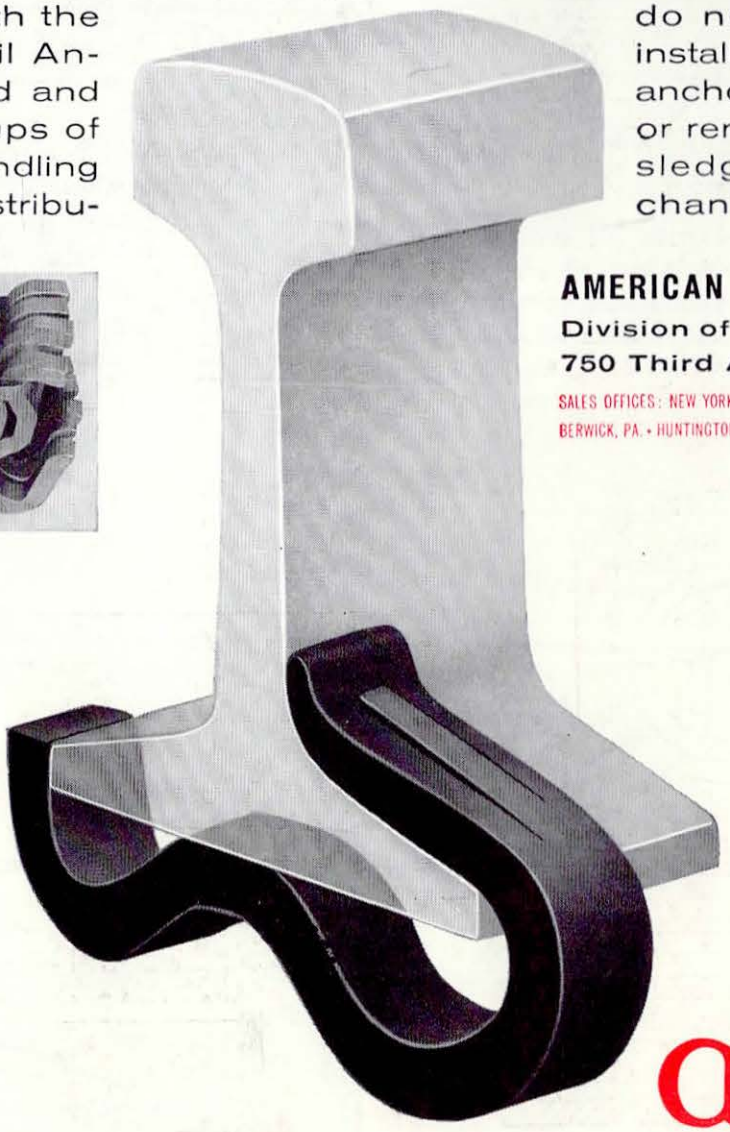

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